

Selection of Agencies for

Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required.

(JREDA) **Government of Jharkhand**

Tender Reference No. 09/JREDA/CMC/WS/OFF GRID/24-25



Jharkhand Renewable Energy Development Agency (JREDA)

3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834002.

Ph.: 0651-2491161, Fax: 0651-2491165,

E-mail: info@jreda.com; Website: www.jreda.com

CONTENTS

Sl. No.	Description	Page No.
1	e-Procurement Notice	03
2	Section-1 List of Important dates & details of Bids	04
3	Section-2 Instruction to Bidders	05
4	Section-3 Notice Inviting Bid	07
5	Section-4 Instruction to Bidders	12
6	Section-5 General Terms & Conditions	24
7	Section-6 Technical Specifications	30
8	Annexure-1 (Covering Letter)	39
9	Annexure-2 (Information about the Bidding Firm)	40
10	Annexure-3 (Declaration by the Bidder)	41
11	Annexure-4 (Annual Turn Over)	42
12	Annexure-5 (Net Worth)	43
13	Annexure-6 (Power of Attorney for Signing Bid)	44
14	Annexure-7 (Details of Work Experience)	45
15	Annexure-8 (Technical Details)	47
16	Annexure-9 (Technical Detail Form Warrantee Card)	48
17	Annexure-10 (Quoted village format)	50
18	Annexure-11 (Price Bid format)	51
19	Annexure-12 (Bank Guarantee format for EMD)	52
20	Annexure-13 (Certificate of Material Delivery & Installation)	54
21	Annexure-14 (O&M and CMC report format)	56
22	Annexure-15 (Contact Person for the NIB).	59
23	Annexure-16 (Check List of Technical bid)	60
24	Annexure-17A & 17B (Bidder's Declaration of Site Survey/Visit along with Checklist for Off Grid Solar Mini/Micro Grid Plant	61
25	Annexure-18 (Operation and Maintenance Guidelines)	69
26	Annexure-19 (List of Mini Grid sites with Plant Capacity)	76

Govt. of Jharkhand
Energy Department
Jharkhand Renewable Energy Development Agency (JREDA)
3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834002.
Ph.: 0651-2491161, Fax: 0651-2491165,
E-mail: info@jreda.com; Website: www.jreda.com

e-Procurement Notice

Tender Reference No.: 09/JREDA/CMC/WS/OFF GRID/24-25

Dated: 02.08.2024

1	Name of the work	Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .
2	Estimated Capacity (kWp)	891 kWp
3	Estimated Project cost (Rs.)	Rs 87029355.00
4	Period of Completion	04 (Four) Months
5	Contract Period	05(Five) Years
6	Date of publication of NIT on website: http://jharkhandtenders.gov.in	03.08.2024 (Saturday)
7	Date & time of Pre-bid meeting	12.08.2024 (Monday) upto 2.00 P.M.
8	Last date & time for receipt of online bids	24.08.2024 (Saturday) upto 05:00 PM
9	Submission of original copies of Bid fee & EMD (Online) via SBI Payment Gateway of Jharkhand Tender	24.08.2024 at 5.00 P.M.
10	Technical Bid Opening Date	27.08.2024 (Tuesday) at 3.00 P.M.
11	Name & address of office inviting tender	Director, Jharkhand Renewable Energy Development Agency(JREDA) 3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002 (Jharkhand)
12	Contact no. of procurement officer	0651-2491163/61/7004806449
13	Helpline no. of e-procurement	0651-2491163/61

Any corrigendum/addendum can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com. Further details can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com

Sd/-
Director,
JREDA, Ranchi

Section -1

NIB No: 09/JREDA/CMC/WS/OFF GRID/24-25

List of Important dates & details of Bids

1.	Name of work	Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .	
2	Estimated Project Cost	Rs 87029355.00	
3	Tender reference no.	09/JREDA/CMC/WS/OFF GRID/24-25	
4	Mode of submission oftender	Online through www.jharkhandtenders.gov.in	
5	Cost of Bid document(Non-refundable)	❖ For General Bidder: ₹ 11,800/- inclusive GST ❖ For MSEs of Jharkhand (Manufacturing Sector): Nil.	
6	Earnest MoneyDeposit	❖ For General Bidder: Rs 1.5 Lakhs ❖ For MSEs of Jharkhand (Manufacturing Sector): Nil.	
7	Date of publication of NIT on website: http://jharkhandtenders.gov.in	03.08.2024 (Saturday)	
8	Period of downloading of bidding documents	Start date: 07.08.2024	Time: 11.00 AM
		End date: 24.08.2024	Time: 05.00 PM
9	Bid online submission	Start date:14.08.2023	Time: 10.00 AM
		End date: 24.08.2024	Time: 05.00 PM
10	Technical bid opening date	27.08.2024 (Tuesday)	Time: 03.00 PM
11	Authority inviting bids	Director, Jharkhand Renewable Energy Development Agency (JREDA)	
12	Address	Jharkhand Renewable Energy Development Agency(JREDA)3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002. Ph.No: 2491161,Fax No: 0651-2491165 Web site: www.jreda.com E-mail: info@jreda.com	

NOTE** Only electronic receipt of Cost of Tender and Earnest Money Deposit (Bid Security) will be acceptable as per provisions of Standard Operating Procedure (SOP). Issued by Information Technology & e- Governance Department, Government of Jharkhand Vide Order Memo No. 120, Dt. 03.10.23 of Secretary, Information Technology & e-Governance Department, Government of Jharkhand.

Section-2
NIB No: 09/JREDA/CMC/WS/OFF GRID/24-25

Instructions to Bidders

Detailed instructions & documents to be furnished for online bidding.

1. The guidelines to submit bid online can be downloaded from website <http://.Jharkhandtenders.gov.in>
2. The interested bidders can download the bid from the website "<http://.Jharkhandtenders.gov.in>".
3. To participate in bidding process, bidders have to get 'Digital Signature Certificate (DSC)' as per Information Technology Act-2000 to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mentioned digital signature certificate from any approved vendors (CCA). Bidders, who already possess valid Digital Certificates, need not to procure new Digital Certificate.
4. The bidders have to submit their bids online in electronic format with digital Signature. The bids without digital signature will not be accepted. No proposal will be accepted in physical form.
5. Bids will be opened online as per time schedule mentioned in Section 1
6. Bidders should get ready with the scanned copies of cost of documents & EMD as specified in the tender document. Before submission of online bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.
7. Only electronic receipt of Cost of Tender and Earnest Money Deposit (Bid Security) will be acceptable as per provisions of Standard Operating Procedure (SOP). Issued by Information Technology & e-Governance Department, Government of Jharkhand Vide Order Memo No. 120, Dt. 03.10.23 of Secretary, Information Technology & e-Governance Department, Government of Jharkhand.
8. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority.
 - i. The department will not be responsible for delay in online submission due to any reason.
9. All the required information for bid must be filled and submitted online.
10. Other details can be seen in the bidding documents.
11. **Submission of rate/price-bid in any form by the bidder in technical section shall lead to rejection of bid.**

B. Details of documents to be furnished for online bidding

1. Scanned copies of the following documents to be up-loaded in pdf. format on the website <http://.Jharkhandtenders.gov.in>.
 - i. Online receipt of Tender fee
 - ii. Online receipt of EMD
 - iii. GST certificate.
 - iv. PAN Card
 - v. Firm's registration certificate, Incorporation Certificate as applicable
 - vi. Registration certificate of MSE of Jharkhand.

- vii. Certificate issued by Industry Dept. or MNRE for system manufacturing/ Services or Registration Certificate issued from Department of Energy, Govt. of Jharkhand.
 - viii. Audited financial Report for the last 3 financial years i.e. audited Balance sheet & P/L (FY2020-21, FY2021-22 & FY 2022-23) certified by chartered Accountant.
 - ix. Income tax return certificate of last three years (AY2021-22,2022-23 & 2023-24).
 - x. Net Worth Certificate certified by Chartered Accountant.
 - xi. Test Certificates for PCU, Battery and Module as applicable which shall be issued by MNRE approved/accredited Test Labs A bidder can either apply under General category or in MSEs category therefore bidder have to submit an undertaking which should clearly mention the category (General/MSEs of Jharkhand). Bid will be evaluated under the provision of that particular category
 - xii. For Claiming benefit of MSEs of Jharkhand, valid test reports must be submitted highlighting that the manufacturing unit is located within the state of Jharkhand & must be manufacturer of any one of the major components i.e.(Module/Battery/PCU) issued by MNRE/BIS/NABL approved test lab
 - xiii. Authorized address & contact numbers of the bidder as per instruction in the Notice Inviting Bid duly digitally signed
 - xiv. JREDA Contractor Registration Certificate.
 - xv. Undertaking of Bidder that he is able to invest minimum of cash up to 10% as defined in ITB.
 - xvi. Undertaking for validity of bid for 180 days.
 - xvii. Copy of written power of attorney of the signatory of the Bid for bidding
2. Scanned copies of the Annexure as per the enclosed formats should be uploaded after converting the same to .pdf format.
- i. Annexure-1 : Covering letter.
 - ii. Annexure-2 : Information about the bidding firm.
 - iii. Annexure-3 : Declaration by the bidder.
 - iv. Annexure-4 : Annual Turnover.
 - v. Annexure-5 : Net Worth certificate.
 - vi. Annexure-6 : Format for power of attorney for signing of bid.
 - vii. Annexure-7 : Proof of supply/execution of SPV Items/systems in any SNA/Govt. organization/PSU in the last seven years. Attach copy of orders & its satisfactory completion certificate.
 - viii. Annexure-8 : Technical details & make of the Equipment's to be supplied.
 - ix. Annexure-12 : Bank Guarantee Format for EMD
 - X. Annexure-15 : Contact Person for the NIB
 - xii. Annexure-16 : Checklist for technical bid
 - xiii. Annexure- 10 : Quoted Village Name details
 - xiv. Annexure-17A : Bidder's Declaration of Site Survey/Visit along with Geo-tagged photographs of the Solar Mini/micro grid Plant.
 - xv. Annexure-17 B Checklist for Off Grid Solar Mini/Micro Grid Plant
 - xvi. Registration certificate: Contractor Registration certificates
3. Duly filled in & digitally signed Price Bid.
4. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority on receipt of such letter, which will be sent through registered post.
5. SBD is not to be uploaded by the bidder. The bidder has to give affidavit stating agree / disagree on the conditions in the SBD. The bidders, who disagree on the conditions of SBD, cannot participate in the tender.

Section-3

09/JREDA/CMC/WS/OFF GRID/24-25

Notice Inviting Bid

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required.

Preamble:

“Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required. for short listing of experienced & eligible bidders to whom work shall be allocated for successful execution of the project in a defined time frame.

(I) General Requirement :

- 1.** The bidder should be a registered company/ Proprietorship/LLP/ Partnership/ /Firm/ Corporation in India. **Authorized dealers’ companies/firms/ corporations and subcontractors are not eligible to participate.**
- 2. Bidders claiming benefit of Micro & Small Enterprises (MSEs) of Jharkhand must fulfill the criteria of Jharkhand Procurement Policy & its subsequent amendment.**
 - i. The manufacturing or Service unit is located within the State of Jharkhand.
 - ii. The Head Office **or** Corporate Office of such registered unit/company/enterprise is within the territorial jurisdiction of Jharkhand.
 - iii. “MSE is registered with the Directorate of Industries/District Industries Centre, Khadi and Village Industries Board, Directorate of Handloom, Sericulture and Handicraft of Jharkhand Govt, Industrial Area Development Authorities and National Small Industries Corporation Ltd **or** any other body specified by Directorate of Industries, Jharkhand Govt from time to time and other industrial units/enterprises which have submitted IBM and been issued Date of Production (DOP) certificate by GM, DIC/MD, Industrial Area Development Authorities/ Director, Industries, GoJ **or** MSEs having Udyog Aadhar Number issued by Ministry of Micro, Small and Medium Enterprises, GoI to be duly verified, whether unit is existing/functional and doing regular production at what capacity by GM, DIC/MD, Industrial Area Development Authorities/Director, Industries, GoJ”.
 - iv. The MSEs /other Enterprises and units must be registered under Jharkhand Goods and Services Tax (JGST) Act-2017 or The Central Goods & Services Tax (CGST) Act 2017.

- v. The MSE /other enterprise and unit must have encouraged local people in employment.
 - vi. The MSE /other enterprise and unit must have complied with all statutory and legal formalities of concerned regulators/Act.
 - vii. The MSE Unit availing preferential treatment will give an undertaking with respect to point i to vi above including a categorical statement that the product/services being supplied to Govt. Dept. or its agencies has been manufactured/created by the unit located in Jharkhand only, giving details of batch no./date or any other identifiable tag (GSI etc) as per prevalent established practice and will have to submit compulsorily duly signed copy of Form GSTR-9C (For units having aggregate yearly turnover of more than 2 crores) as prescribed under JGST Act-2017". However, in case of VAT products/services, Form JVAT-409 (For units having of gross yearly turnover more than 60 lacs) issued by dept. of Commercial taxes, Govt. of Jharkhand.
- 3.** A registered manufacturing company/Firm/Corporation in India (Including MSME of Jharkhand) of at least one of the major components namely SPV Cells/ Modules or Battery or PCU (Conforming to relevant National/ International Standards). The bidder shall furnish either relevant certificate or concerned Industry Department certificate clearly indicating that they are manufacturers of SPV Cells/ Modules or Battery or PCU.
 - 4.** A registered manufacturing/Service company/Firm/Corporation in India (Including MSME of Jharkhand) having Udyog Aadhar Number issued by Ministry of Micro, Small and Medium Enterprises, Govt. to be duly verified, whether unit is existing/functional and the Bidders who are local MSMEs and registered under the MSME Development Act, 2006 in the State of Jharkhand as per Section D, Division 35, Group 351 having NIC 5-digit code of 35105 (Electric power generation using solar energy) .
 - 5.** Registered Micro & Small Enterprises (MSMEs) of Jharkhand should submit the attested copy of Registration certificate/ Udyog Aadhar/Udyam issued by the Industry Department, Govt. of Jharkhand duly verified by concerned DIC.
 - 6.** The bidder should be a functional organization. To substantiate this claim, the bidder should submit the copy of Audited accounts for last 3 Financial years i.e. audited Balance sheet & P/L for FY 2020-21 , 2021-22 & 2022-23 along with Income Tax Return (ITR) for AY 2021-22 , AY 2022-23 & AY 2023-24 complete set. These audited accounts should be duly certified by the Statutory Auditor with his stamp.
 - 7.** The bidder should have valid GST and PAN.
 - 8.** Bids from joint venture are not allowed.
 - 9. Contractor Registration in JREDA is mandatory to participate in this tender.**
 - 10.** Bidder not having satisfactory performance in the performance certificates will not be eligible to participate in tender

(II) Commercial Requirement:

1. Turnover certificates:

For General Bidder: Minimum Average Annual turnover (MAAT) during the last 3 financial years i.e (FY 2020-21, 2021-22 & 2022-23) certified by chartered Accountant & it should be at least **2.61 crore.** (30% of the 8.71 crore =2.61crore)

For MSE of Jharkhand: Minimum Average Annual turnover (MAAT) during the last 3 financial years i.e (FY 2020-21, 2021-22 & 2022-23) certified by chartered Accountant & it should be at least **0.87 crore.** (10% of the 8.71 crore =0.87crore)

The certificate should be issued by CA with UDIN No. as per the Performa given at **Annexure-4**

2. Net worth Requirement:

For General Bidder/MSE of Jharkhand: Bidder should have Positive Net Worth as on 31.03.2023 on the basis of audited annual accounts.

Net worth certificate should be issued by CA with UDIN no. as per the Performa given at Annexure-5

(III) Technical Requirement:

Experience Requirement:

For General Bidders: Experience of having successfully completed similar works in any SNA / Govt. Organization / PSU during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following : -

Three similar completed works costing not less than the amount equal to **40%** of the tendered value.

Or

Two similar completed works costing not less than the amount equal to **50%** of the tendered value.

Or

One similar completed work costing not less than the amount equal to **80%** of the tendered value.

Definition of Similar Work: - Bidder should have experience of Design, Engineering, Supply, Installation, and Testing & Commissioning of **Solar Mini Grid Plant/Off grid plant.** Each Work Order along with successful completion certificate will be considered as one "Similar completed work"

For MSME of Jharkhand:

One similar completed work costing not less than the amount equal to **10%** of the tendered value from PSU/Govt. Organization/ SNA in last seven years.

NOTE** Documentary proof Work completion certificate from the concern SNA / Govt. Organization / PSU during last 7 years

Valid Test Report from any test centre approved/recognized by MNRE/test labs accredited by NABL and approved by BIS as per Lab Policy for Testing, Standardization and Certification for Renewable Energy Sector (Circular No. 3-2/2015-16(R&D) dated 07/12/2017.

Sr. No.	Components	Standards
1	Solar Module	Should conform to the latest BIS/ International standards /IEC61215edition II / BIS 14286, IEC 61730 part I & II, IEC 62804 or
2	PCU	As per latest IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std., IEC60068-2 (1, 2, 14, 30)/ Equivalent BIS std., IEC 62109-1 & 2/ Equivalent BIS std
3	Battery	Should conform to the latest BIS/ International standards /IS 15549,:2015,IS16047 equivalent latest BIS , IEC 61427 ,16046 or relevant latest IS specifications as per MNRE requirements.

The Bidder should confirm that they have the resources and capability to supply the offered quantity within the scheduled period in the form of an undertaking.

****Note: All the above test reports are mandatory for being technically eligible.**

(IV) Procedure for Award of Work :

- i. The lowest rate i.e., L1 received would be the appropriate rate for awarding the work. The bidders shall be ranked as L1, L2, L3 and so on based on financial bids.
- ii. JREDA will allot the quantum of work to L1 bidder on the basis of quoted quantity by the bidder. If required, the remaining work will be offered to L2 bidder at L1 rate, and so on.
- iii. Allocation of the quantity to MSMEs registered in Jharkhand will be made as per the provisions of Jharkhand Procurement Policy 2014. MSMEs of Jharkhand should be functional & having running production unit in the State and should fulfill all the criteria as defined in Jharkhand Procurement Policy 2014.
- iv. Successful bidders shall be required to furnish at the time of Agreement, documentary evidence of the quantity of production of the self-manufactured component/s for the last three years.
- v. If quantity/capacity is left unallocated in any category, JREDA reserves the right to reallocate the left-over quantity to other categories.

In Case any Bidder is L-1 in multiple villages than Director JREDA will have right to decide maximum no. of villages which can be allocated to the bidder

(v) Important Note**

- 1. Agency has to visit village before Quoting rate in BOQ. The list of minigrid Sites are attached in annexure 19**
- 2. Survey Report and Geo-tag Photographs shall be verified by JREDA.**
- 3. Bidder has to replace Battery in each site.**
- 4. Inverter should be repaired and new RMS system shall be provided if not available.**
- 5. In case Inverter is unrepairable than it must be replaced with same/match able specifications**
- 6. All the broken/Damaged Modules if any must be replaced.**
- 7. Control Room, Gate & fencing all must be maintained properly.**
- 8. House wiring of each house including provision of switch board with necessary switches and sockets, a watt hour meter, LED Bulb, all must be maintained properly.**
- 9. Testing and commissioning the entire solar micro-grid system as well as service connection etc.**
- 10. Providing street lights @ 10% of the total numbers of households in suitable locations in the village so as to illuminate the streets, approach roads etc.**
- 11. Operation and maintenance of the installed systems for a period of 05 years from the date of installation.**
- 12. Bidder must warrant the functionality of Replaced components till its Warranty period.**
- 13. All the broken/damaged modules (if any) must be taken in record and replaced with same or above rating and specifications such that the replaced modules are in line with the existing specifications of the plant and may work upto their optimum capacity.**

SECTION-4

NIB No: 04/JREDA/OFFGRID/RC/24-25

Table of Clauses

Clause A. General		Clause D. Submission of Bids	
1	Scope of Bid	17	Deadline for Submission of Bids
2	Source of Funds		
3	Eligible Bidders	E.	Bid Opening
4	Qualification of the Bidder	18	Bid Opening
5	One Bid per Bidder	19	Process to be Confidential
6	Cost of Bidding	20	Clarification of Bids and Contracting the JREDA
7	Site Visit	21	Examination of bids and
			Determination of Responsiveness
B.	Bidding Documents and Evaluation	22	Correction of Errors
7	Content of Bidding Documents	23	Evaluation and Comparison of Bids
8	Clarification of Bidding Documents	24	Price Preference
9	Amendment of Bidding Documents	F.	Award of Contract
C.	Preparation of Bids	25	Award Criteria
10	Language of Bid	26	JREDA Right to Accept any Bid And to reject any or all Bids
11	Documents Comprising the Bid	27	Notification of Award
12	Bid Prices	28	Performance Security
13	Currencies of Bid	29	Corrupt or Fraudulent Practices
14	Bid Validity		
15	Earnest Money		
16	Sealing and Marking of Bids		

Instructions to Bidders (ITB)

A. General

1. Scope of Bid

- 1.1. The JREDA invites bids for the work as described in these documents and referred to as "the work". The name and identification number of the works is provided in the Notice Inviting Bid.
- 1.2. The successful Bidder will be expected to complete the Works by the Intended Completion time specified in the General Conditions of Contract.
- 1.3. Throughout these documents, the terms "bid" and "tender" and their derivatives (bidder/ tenderer, bid/ tender, bidding/ tendering) are synonymous.
- 1.4. Electrification of each village will be considered as single project

2. Source of Funds

The JREDA has decided to undertake the works of "Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required. through funds available for CMC/maintenance of work from Government of Jharkhand and to be implemented through JREDA. Work order as per the availability of fund or only after availability of fund from Government of Jharkhand.

The Site Details along with the capacity is as per Annexure 19

3. Eligible Bidders

- 3.1 This Invitation for Bids is open to all bidders as defined in the Notice Inviting Bid.
- 3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices /debarred/blacklisted by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the works.

4. Qualification of the Bidder

- 4.1 All bidders shall provide in Section 3, Forms of Bid and Qualification information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 4.2 All bidders shall include the following information and documents with their bids in Section 3, Qualification Information unless otherwise stated in the Notice Inviting Bid/ITB.
- 4.3 Copies of original documents defining the constitution or legal status, place of registration, and principal place of business.
- 4.4 Copy of written power of attorney of the signatory of the Bid to commit the Bidder.

- 4.5 Experience in works of a similar nature and size for each of the last seven years, and details of works in progress or contractually committed with certificates from the concerned officer or competent authority.
- 4.6 Reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the last three years.
- 4.7 Bidder shall submit all the information required to be provided as per Annexures-
- 4.8 The Bidder, at his own cost, responsibility and risk, is encouraged to visit, examine and familiarize himself with the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for CMCO Works. The costs of visiting the Site shall be at the Bidder's own expense. He may contact the person whose contact details are given in the Notice Inviting Bid.
- 4.9 Information regarding any litigation or arbitration during the last seven years in which the Bidder is involved, the parties concerned, the disputed amount, and the matter;
- 4.10 Even though the bidders meet the qualifying criteria of Section-3, they are subject to be disqualified if they have:
 - i. made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or
 - ii. record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures
 - iii. Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to JREDA.

5. One Bid per Bidder

- 5.1 Each Bidder shall submit only one Bid for one work. A Bidder who submits more than one Bid will cause the proposals with the Bidder's participation to be disqualified.

6. Cost of Bidding

- 6.1 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the JREDA will, in no case, be responsible or liable for those costs.

7. Site Visit

- 7.1 The Bidder, at his own cost, responsibility, and risk, is encouraged to visit, examine and familiarize himself with the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for supply & installation of the Works. The costs of visiting the Site shall be at the Bidder's own expense. He may contact the person whose contact details are given in the Notice Inviting Bid.
- 7.2 **Bidders must visit the attached Minigrid sites before Quoting rates in BOQ and submit duly filled site survey report as described in Annexure 17A & 17B as proof of site visit/site survey along with Geo-Tagged Site Photographs.**
- 7.3 **Non-submission of and declaration & site Survey Report with Geo-tag Photographs as per Annexure-17A, 17 B may will lead to disqualification of the bidder for evaluation.**

B. Bidding Documents

8. Content of Bidding Documents

- 8.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 10 of ITB.
- a. Notice Inviting Tender
 - b. Instructions to Bidders
 - c. Qualification Information
 - d. Conditions of Contract
 - e. Bill of Quantities
 - f. Form of Bid
 - g. Form of Bank Guarantee.
- 8.2 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms and specifications, bill of quantities, forms in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 21 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9. Clarification of Bidding Documents and Pre-bid Meeting

- 9.1 A prospective Bidder requiring any clarification of the bidding documents may notify the JREDA in writing at the JREDA's address indicated in the Notice Inviting Tenders.
- 9.2 Pre-bid meeting will be held on in the Conference Hall of JREDA. The bidder or his authorized representative may attend the meeting.
- 9.3 The purpose of such a meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 9.4 The bidder is requested to submit any questions in writing so as to reach the JREDA not later than two days before the meeting.
- 9.5 Any modifications of the bidding documents listed in Clause 8.1 of ITB, which may become necessary as a result of the pre-bid meeting shall be made by the JREDA exclusively through the issue a Corrigendum/Addendum.
- 9.6 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

10. Amendment of Bidding Documents

- 10.1 Before the deadline for submission of bids, JREDA may modify the bidding documents by issuing corrigendum/addendum.
- 10.2 To give prospective bidders reasonable time in which to take a corrigendum/addendum into account in preparing their bids, the JREDA shall extend, if necessary, the deadline for submission of bids, in accordance with Clause 17.2 of ITB.

C. Preparation of Bids

11. Language of Bid

- 11.1 All documents relating to the Bid shall be in the English language specified in the Notice Inviting Bid.

12. Documents Comprising the Bid

- 12.1 Technical Bid – (Fee/Pre-Qualification/Technical Cover)
- i. EMD & Tender Fee

- a. Scanned Copy of Demand draft drawn in favour of "DIRECTOR, JREDA", payable at Ranchi towards Cost of Tender Fee and Earnest Money Deposit as specified in the Notice Inviting Bid. Bid fee and EMD to be submitted in original in the office of JREDA as per the instruction given in the Bid.
 - ii. Technical Details & Declaration
 - a. Proposed work programme (work method, time schedule and financial flow), description, and charts as necessary (Duly to be signed digitally) to comply with the requirement of the Bidding Document.
 - b. Scanned copy of an Affidavit by the Bidder that he/she has accepted the S.B.D.
 - iii. Valid test Report from MNRE approved Labs of the offered system
 - iv. Technical Details of documents
Scanned copies/Prescribed Formats of Documents to be attached in "My Document" in .pdf format file duly digitally signed by the bidder as per accordance with the clause B of section 2
- 12.2 Financial Bid – (Finance Cover)
- a. Duly Quoted & digitally signed Bill of Quantity (BoQ) in the file supplied by JREDA in .xls/.pdf format shall be uploaded.

NOTE: - All the documents should be digitally signed.

- 12.3 The following documents, which are not submitted with the bid, will be deemed to be part of the bid.
- Section Particulars
- a. Notice inviting Tender
 - b. Instruction to the bidders
 - c. Conditions of Contract
 - d. Contract Data

13. Bid Prices

- 13.1 The Contract shall be for the whole Works, as described in Clause 1.1 of ITB.
- 13.2 The Bidder shall adopt the Item Rate Method as specified in the Notice Inviting Bid only the same option is allowed to all the Bidders.
- 13.3 All duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder.
- 13.4 The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment.

14. Currencies of Bid

- 14.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees (INR).

15. Bid Validity

- 15.1 Bids shall remain valid for a period of 180 (One Hundred Eighty) days after the deadline date for bid submission specified in Clause 19 of ITB. A bid valid for a shorter period shall be rejected by the JREDA as non-responsive.

16. Earnest Money

- 16.1 The Bidder shall furnish, as part of the Bid, Earnest Money, in the amount specified in the Notice Inviting Bid.
- 16.2 The Earnest Money shall, at the Bidder's option, be in the form of Bank Guarantee/Demand Draft/TDR/FDR of a scheduled commercial bank, issued in favour of the name given in the Notice Inviting Bid. The Bank Guarantee shall be valid for 12 months or more after the last date of receipt of bids. Other forms of Earnest Money acceptable to the JREDA are stated in the Notice Inviting Bid.
- 16.3 Any bid not accompanied by an acceptable Earnest Money, unless exempted in terms given in the Notice Inviting Bid, shall be rejected by the JREDA as nonresponsive.
- 16.4 The Earnest Money of unsuccessful bidders will be returned within 07 days of finalization of the tender.
- 16.5 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Security Deposit.
- 16.6 The Earnest Money may be forfeited:
- a. if the Bidder withdraws the Bid after bid opening (technical bid) during the period of Bid validity;
 - b. in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - i. sign the Agreement; and/or
 - ii. Furnish the required Security Deposit.

17. Sealing and Marking of Bids

- 17.1 The Bidder shall place the file marked "Technical Bid". The file will have markings as follows:-
- Technical Bid: To be opened on (date and time of Technical Bid opening as per clause 18.1 of ITB.)
- The Technical bid file shall only contain Original of DD towards payment of bid fee and DD or BG/TDR/FDR towards payment of EMD.
- 17.2 The file containing the Technical Bid shall
- a) Be addressed to the JREDA at the address provided in the Notice Inviting Bid
 - b) Bear the name and identification number of the Contract as defined in clause 1.1 of ITB; and
 - c) Provide a warning not to open before the specified time and date for Bid opening as defined in clause 18.1 of ITB.

D. Submission of Bids

18. Deadline for Submission of Bids

- 18.1 Complete Bids (including Technical and Financial) must be received by the JREDA at the address specified in the Notice Inviting Bid not later than the date and time indicated in the Notice Inviting Bid.
- 18.2 The JREDA may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 8.3 of ITB, in which case all rights and obligations of the JREDA and

the bidders previously subject to the original deadline will then be subject to the new deadline.

E. Bid Opening and Evaluation

19. Bid Opening

- 19.1 The JREDA will open the bids received (except those received late). In the event of the specified date for the submission of bids being declared a holiday for JREDA, the Bids will be opened at the appointed time and location on the next working day.
- 19.2 The files containing the technical bid shall be opened. The document marked "cost of bidding document" will be opened first and if the cost of the bidding documents is not there, or incomplete, the remaining bid documents will not be opened, and bid will be rejected.
- 19.3 In all other cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the bidders' names and such other details as the JREDA may consider appropriate, will be announced by the JREDA at the opening.
- 19.4 The JREDA will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 18.3 of ITB.
- 19.5 Evaluation of the technical bids with respect to bid security, qualification information and other information furnished in Part-I of the bid in pursuant to Clause 12.1 of ITB, shall be taken up and completed and a list will be drawn up of the responsive bids whose financial bids are eligible for consideration.
- 19.6 The JREDA shall inform, by email, the bidders, whose technical bids are found responsive, date, time and place of opening as stated in the Notice Inviting Bid. In the event of the specified date being declared a holiday for the JREDA, the bids will be opened at the appointed time and location on the next working day through they or their representative, may attend the meeting of opening of financial bids.
- 19.7 At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 18.5 of ITB will be announced. The financial bids of only these bidders will be opened. The remaining bids will be returned unopened to the bidders. The responsive bidders' names, the Bid prices, the total amount of each bid, and such other details as the JREDA may consider appropriate will be announced by the JREDA at the time of bid opening. Any Bid price which is not read out and recorded, will not be taken into account in Bid Evaluation
- 19.8 The JREDA shall prepare the minutes of the opening of the Financial Bids.

20. Process to be Confidential

- 20.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the JREDA's processing of bids or award decisions may result in the rejection of his Bid.

21. Clarification of Bids and Contacting the JREDA

- 21.1 No Bidder shall contact the JREDA on any matter relating to its bid from the time of the bid opening to the time the contract is awarded.

- 21.2 Any attempt by the bidder to influence the JREDA's bid evaluation, by any means, bid evaluation, bid comparison or contract award decision may result in the rejection of his bid.

22. Examination of Bids and Determination of Responsiveness

- 22.1 During the detailed evaluation of "Technical Bids", the JREDA will determine whether each Bid
- (a) Meets the eligibility criteria defined in Clauses 3 and 4;
 - (b) Has been properly signed;
 - (c) Is accompanied by the required securities; and
 - (d) is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e. Backend, Integration & Databases Services, Report and feedback services.
- 22.2 The "Financial bids" of only those bidders (for general bidders only) shall be opened, who qualify all the criteria of "Minimum Eligibility Conditions".
- 22.3 A substantially responsive "Financial Bid" is one, which conforms to all the terms, conditions, and specifications of the bidding documents, without deviation as per requirement of NIB. A deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the bidding documents, the JREDA's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.
- 22.4 If a "Financial Bid" is not substantially responsive, it will be rejected by the JREDA, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

23. Corrections of Errors

- 23.1 Bids determined to be substantially responsive, will be checked by the JREDA for any arithmetic errors. Errors will be corrected by the JREDA as follows:
- a. where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
 - b. Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.
- 23.2 The amount stated in the Bid will be adjusted by the JREDA in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Earnest money shall be forfeited in accordance with Clause 15.6(b) of ITB.

24. Evaluation and Comparison of Bids

- 24.1 The JREDA will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 23 of ITB.
- 24.2 In evaluating the bids, the JREDA will determine for each Bid the evaluated Bid price by adjusting the Bid price by making correction, if any, for errors pursuant to Clause 22 of ITB.
- 24.3 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, the JREDA may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to

demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the JREDA may require that the amount of the performance security set forth in Clause 28 of ITB be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the Employer, which shall be final, binding and conclusive on the bidder.

- 24.4 After its evaluation, the JREDA may require that the amount of the performance security set forth in Clause 28 be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the JREDA, which shall be final, binding and conclusive on the bidder.

25. Price Preference

- 25.1 There will be no price preference to any bidder.

F. Award of Contract

26. Award Criteria

- 26.1 Subject to Clause 21 of ITB, the JREDA will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 3 of ITB, and (b) qualified in accordance with the provisions of Clause 4 of ITB; and as per clause 14 of Notice Inviting Bid (Section-3).

27. JREDA's Right to accept any Bid and to reject any or all Bids

- 27.1 Notwithstanding Clause 25 above, the JREDA reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the JREDA's action without any reason.

28. Notification of Award and Signing of Agreement

- 28.1 The bidder whose Bid has been accepted will be notified of the award by the JREDA prior to expiration of the Bid validity period by cable, email, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the Part I - General Conditions of Contract called the "Letter of Acceptance") will state the sum that the JREDA will pay to the Contractor in consideration of the execution and completion of the Works (hereinafter and in the Contract called the "Contract Price").
- 28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 30.
- 28.3 The Agreement will incorporate all agreements between the JREDA and the successful Bidder. It will be signed by the JREDA and the successful Bidder after the performance security is furnished.

- 28.4 Upon the furnishing by the successful Bidder of the Performance Security, the JREDA will promptly notify the other Bidders that their Bids have been unsuccessful.

29. Security Deposit:

- 29.1 Successful General bidder shall submit a **security deposit @10%** of the allotted work order value in the form of Demand Draft/Bank Guarantee/FDR/TDR valid for one year on or before 15 days from issuing work order. If Bank Guarantee/DD/FDR/TDR will not be submitted within stipulated period from the date of issue of work order then JREDA shall cancel the work order.
- 29.2 Successful MSE bidders shall be required to deposit **only 1%** of security deposit (MSE Bidder) i.e. @1% of the allotted work order value in the form of Bank Guarantee/DD/FDR/TDR valid for one year as per Jharkhand Procurement Policy.
- 29.3 The Security Deposit shall be refunded / released to the bidder after successful completion of work and submission of performance guarantee.
- 29.4 The Security Deposit will have to be maintained by the bidder with JREDA till the satisfactory completion of the work. If the work extends beyond the expiry date of Bank Guarantee, bidders shall submit fresh or extend the period of validity of Bank Guarantee as per the direction of JREDA, otherwise JREDA may terminate the work order and blacklist the contractor.

30. Performance Guarantee:

- 30.1 Successful General bidder shall submit a performance guarantee **@5%** of the allotted work order value in the form of Demand Draft/Bank Guarantee/FDR/TDR valid for five years on or before release of Payment against Installation.
- 30.2 Successful MSE bidders shall submit a Performance Guarantee **@0.5%** of the allotted work order value in the form of bank guarantee/DD/FDR/TDR before release of payment against Installation.
- 30.3 The Performance Guarantee will have to be maintained by the bidder with JREDA till the completion of warranty period.
- 30.4 The Security Deposit/Performance Guarantee shall be submitted in the form of bank guarantee/FDR/TDR/DD in favour of "Director, JREDA" payable at Ranchi from any Indian Nationalized bank/Scheduled bank.
- 30.5 Non submission of Security Deposit/Performance Guarantee within the time frame, shall lead to forfeiture of EMD and cancellation of work order.
- 30.6 If Bidder/MSE unit fails to carry out the work allotted to him as per the provisions of the tender documents then such Bidder/MSE unit may be black listed for future awards of work.

31. Liquidated damages for delay in completion of Work:

If the Successful Bidder fails to complete the Work within the period specified in the Agreement or any extension granted thereto under force majeure conditions, JREDA will recover from the Successful Bidder as penalty @ 0.5% at the contract price for each week of delay. The total penalty shall not exceed 10% (ten percent) of the contract price. Beyond 10 weeks of delay, JREDA may:

- a) Allow Successful Bidder to continue Work; OR
- b) JREDA may terminate the Contract with Successful Bidder and get Work completed by other party at risk and cost of Successful Bidder.

In either of the cases above, JREDA would recover the loss of subsidy from the Successful Bidder. This recovery shall be in addition to penalty for delay for 10 weeks.

32. Insurance:

1. The Supplier shall arrange for insurance against any type of theft/damage defect of the complaint/sub-complaints for the comprehensive maintenance contract & Operation (CMCO) period.

32. Corrupt or Fraudulent Practices

The JREDA requires the bidders/Contractors to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.

34. Five Years Comprehensive Maintenance Contract & Operation (CMCO)

- 34.1 The SPV Power Plant Contract price includes the provision of 5 years mandatory Comprehensive Maintenance Contract & operation (CMCO). To ensure long term sustainability of the system, the bidder must provide his representatives name, full address, mobile number and photographs to JREDA with one hard copy as well as the names and contact details of all technicians must also be provided. Failure to do shall invite penalty and action. The contractor have to make suitable arrangement for running, operation and maintenance of SPV off-grid Power Plant by deputing skilled persons.
- 34.2 The Comprehensive Maintenance Contract & Operation shall include servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter, existing PV modules and other hardware) running, operation and maintenance of SPV Power Plant from the date of installation. Battery should be warranted for a minimum life of 5 years. The contractor have to make suitable arrangement for running, operation and maintenance of SPV Power Plant by deputing electrician and other skilled persons required in the plant 24 x 7 so that SPV Power Plant will be functional every day. The date of CMCO maintenance period shall begin on the date of actual re-commissioning of SPV offgrid Power Plant /equipment. It is mandatory for the contractor to carry out CMC regularly and submit quarterly CMC report including maintenance schedule to JREDA . Failure to submit CMC reports timely shall invite penalty and action.
- 34.3 For any issue related to operation & maintenance, a contact number shall be made available to the concerned departments to resolve immediately, if the bidder do not attempt the rectification of any such defect within three days of communication of such complaint to the bidders, the bidder will be liable for a penalty of @ 0.5% at the contract price for each week of delay. The total penalty shall not exceed 10% (ten percent) of the contract price. Further if the outage of the plant is more than 15 days continuously, then the 50% PBG amount shall be encased by JREDA and if the outage is exceeding more than 60 days than complete PBG amount shall be encased by JREDA. This will be applicable till 5 years of O&M as per the scope of the RFP. Bidder shall submit **CMC report as per the Annexure- 14 with generation data within 7 working days of subsequent month. Failure to submit Quarterly CMC reportsand Monthly Generation Report timely shall invite penalty and action.**
- 34.4 The Contractor should have sufficient numbers of skilled staff for proper maintenance of solar off-grid power plant. The contractor has to make suitable arrangement for running, operation and maintenance of SPV Power Plant by deputing electrician and other skilled persons required in the plant 24 x 7 so that SPV off grid Power Plant will be functional every day. It is mandatory for the contractor to carry out CMC regularly for Solar Mini grid system and submit report including maintenance schedule to JREDA. Failure to submit quarterly CMC reports & monthly Generation Report (Solar Mini/Micro grid Plant) timely shall invite penalty and action.

35 Preventive/Routine Maintenance:

This shall be done by the supplier/contractor at least once in every month and shall include activities such as, cleaning and checking the health of the SPV system, cleaning of module surface, topping up of batteries,

tightening of all electrical connections, regular checks to identify any leakage of electricity, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals and any other activity that may be required for proper functioning of the Solar Photovoltaic Power Plant. The maintenance record should be kept properly and to be submitted at JREDA office time to time. CMC documents should be certified by Beneficiary.

36 Breakdown / corrective Maintenance:

Whenever a complaint is lodged by the user the bidder shall attend the same immediately. It is clarified that effective CMCO means that the bidder should ensure 24 hours smooth working of SPV Power Plant throughout the CMCO period and therefore, if any complaint in this level of service is found by the JREDA officials and if the bidder do not attempt the rectification of any such defect within three days of communication of such complaint to the bidders, the bidder will be liable for a penalty of Rs. 1000 per day beyond seven days of reporting of such complaint.

37 Advances

The JREDA will not provide Mobilization Advance and Advance against the security of equipment as provided in Part I - General Conditions of Contract.

38 Corrupt or Fraudulent Practices

The JREDA requires the bidders/Contractors to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.

39 Timeline/ Completion Period:

The time of completion shall be adhered as per the timeline defined in the table below:

Sl. No	Activity/Deliverables	Timelines
1	Issuance of Letter of Award (LoA) to the contractor	X Days
2	Signing of Agreement between JREDA & Contractor	X+ 15 Days
3	Call for Pre Dispatch Instruction	X+ 30 Days
4	Issuance of Dispatch Instruction by JREDA	X+40 Days
5	Delivery of Material on Site	X+60 Days

Section-5 General Terms & Conditions

Introduction: -

The instruction/information contained in the bid documents are for guidance and compliance of the intending bidder. Bidders are advised to obtain clarification from JREDA, if any, prior to submission of their bid, failing which it will be deemed that the stipulation made in the bid documents have been read, understood and are acceptable to the bidder.

Bidder shall bear all costs associated with the preparation and submission of the bid, journeys undertaken by them and subsequent bidding process till the award of the order to successful bidder and the JREDA shall in no case, shall be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

2.0 Scope of work:

The Scope of work includes **“Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .**

The Scope of Work is as mentioned below: -

Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required.

- i. The contract price includes the provision of 5 years operation and mandatory Comprehensive Maintenance Contract & Operation (CMCO) to ensure long-term sustainability of the system. The contractor should provide his representative’s name, full address, mobile number, and photographs to JREDA with one hard copy.
- ii.
 - a) The Contractor shall install RMS system for existing working/repairable PCU for data collection to give accurate insights of plant’s performance. The monthly charge of SIM card will be borne by bidder.
 - b) For New PCU, all the relevant parameters of PCU should be available for remote monitoring over internet using GPRS (2G, 3G & 4G enabled) based monitoring solution. PCU shall have GPRS (2G, 3G & 4G enabled) in ability based on SIM card which shall be provided by the bidder. The monthly charge of SIM card will be borne by bidder. The list of parameters should include:

Inverter/ Mains Charger	Inverter Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current
-------------------------	---

	<ul style="list-style-type: none"> • Daily & total Battery charging energy (kWh) • Daily & total Battery discharging energy (kWh) • Daily & Total load energy consumption(kWh) • Active Faults
Solar Charge Controller	PV Voltage, PV Current, PV Power, Daily PV Generation, Total PV Generation.

- c) The Contractor shall install main Meter in Control Room and one meter shall install for each Households.
 - d) Chain-Link Fencing of entire solar plant, PDN in accordance with the provision of clause 1.7 of section 6 and Control Room should be repaired and new fencing shall be provided if not available. Details of fencing are mention in accordance with the provision of clause 1.6 of Section 6
 - e) Providing service connections to all houses in the village.
 - f) House wiring including provision of switch board with necessary switches and sockets, a watt hour meter, 4 LED should be maintained properly.
 - g) Bidder are advised to visit the minigrid sites (as per list given in the bid document) before bid submission. The list of minigrid sites are attached in **annexure-19**.
 - h) Bidder must replace all the batteries of concern minigrid sites
 - i) All the broken/damaged modules (if any) must be taken in record and replaced with same or above rating and specifications such that the replaced modules are in line with the existing specifications of the plant and may work upto their optimum capacity.
 - j) Bidder must take-over all the equipment(s) of Solar Plant under consideration, for Replacement of damaged equipment(s)/component(s) and must repair/install/fix any faulty component, including but not limited to solar PV, inverters, cables, meters, batteries, poles, mini-grid lines, civil works, and other balance of systems, such as to make the whole plant fully operational
 - k) Bidder must warrant the functionality of Replaced components till its Warranty period
- iii. **The Operation and Maintenance** shall include ensuring operation of system on day to day basis. The system should be operational from evening to morning with full illumination. The contract shall include ensuring servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter, PV modules and other hardware of SPV SPP for five years. Battery should be warranted for a minimum life of 5 years. The date of CMC shall begin from the date of issuance of work order for CMCO contract. It is mandatory for the contractor to carry out CMC regularly and submit report to JREDA on monthly basis along with monthly generation Report on regular basis.
- iv. All the electrical connections/ terminations of the Solar plant must be thoroughly checked, cleaned, make rust-free, and tightened by the contractor
- v. The agency must inspect the healthiness of Earthing and Lightening Arrester system and take proper actions to bring it to normality
- vi. **Preventive/Routine Maintenance:**
This shall be done by the Contractor twice in a months and shall include activities such as, cleaning and checking the health of the SPV system, cleaning of module surface, topping up of batteries, tightening of all electrical connections, regular checks to identify any leakage of electricity, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals and any other activity including earth resistance

maintenance that may be required for proper functioning of the SPV SPP. The maintenance record should be kept properly and to be submitted at JREDA office time to time.

vii. Breakdown/Corrective Maintenance

Contractor shall ensure 24 hours' smooth operation of Solar Power Plant throughout the CMC period by attending breakdown/routine maintenance immediately. If any complaint regarding system service is found by the JREDA officials and if the Contractor do not attend the rectification of any such defects within three days of communication of such complaint to the contractors, the Contractor will be liable for a penalty of Rs.1000 per day beyond seven days of reporting of such complaint.

viii. Deployment of Manpower/Equipment

Successful bidder shall deploy at least two (2) skilled (Suryamitra) manpower at all times for smooth operation of Solar Mini grid villages installed at West Singhbhum District. Manpower required in the plant 24 x 7 so that SPV Power Plant will be functional every day.

NOTE-Manpower must be on that Solar Mini grid village only.**

- ix. Buy back of existing battery bank along with inter cell connectors and stack box & other components at SPV off-grid Plant location at **West Singhbhum, Jharkhand** on the basis of as is where is including transportation etc.
- x. Execution of the work shall be carried out in an approved manner as per the technical specification of NIB, in case of any dispute relevant MNRE/BIS/ISI specification shall be followed.
- xi. All the material required for the installation of solar mini/micro power plant as per the work order issued shall be kept at sight in custody of the contractor, JREDA shall not be responsible for any loss or damage of any material during the installation. The contractor shall be responsible and take an insurance policy for transit-cum-storage-erection for all the materials.

3.0 Bid documents:

Tender documents shall comprise of all the documents mentioned in this Bid. In addition to these any other documents/amendments/revisions or instructions issued by JREDA from time to time to bidders till due date of opening of the offers, shall also be deemed to be integral part of the bid document.

4.0 Price:

The bidder shall quote his price as per schedule of items of work. The contract price rates shall be firm and binding and shall not be subject to any variation except for statutory variation of taxes and duties during the contractual completion period. The price shall be exclusive of GST & inclusive of all taxes & charges and 5 years Comprehensive Maintenance Contract & Operation (CMCO) as on the opening date of tender. The price shall also include designing, manufacturing, inspection, supply, transport, insurance, handling etc. All applicable charges for taking necessary clearance such as commercial tax, road permit etc. wherever required are also deemed to be included in the contract price.

5.0 Inspection of the factory and Tests:

JREDA reserves the right to inspect manufacturer's works/factory to ascertain the capability/availability of necessary equipment and infrastructure required for manufacture of the items offered. JREDA shall have the access and right to inspect the work or any part thereof at any stage and to test the goods to confirm their conformity to the technical specifications. Successful bidder shall inform JREDA at least 15 days in advance of schedule dispatch for technical sample audit.

6.0 Payment terms and conditions:

Subject to any deduction which JREDA may be authorized to make under this contract, the successful contractor shall be entitled to payment as per given payment Schedule defined in the table below:-

Sr. No.	Activity/Deliverables	Payment Schedule
1	Supply and delivery of goods	56% of Work order Value
2	Installation, Testing & Commissioning of complete Project	24% of Work order Value
3	Completion of every one year period of the 5 year CMC period.	4% of Work order Value per year (4% for 5 years = Total 20%)

Details of Payment terms and conditions as follows:-

- (a) **56%** of the of Contract price shall be paid **after supply and delivery of goods** in full and in good condition as certified by Consignee and/or JREDA Officials after submission of following documents:
- Original Commercial invoice raised from the state of Jharkhand for the supply made in triplicate (1+2).
 - Copy of duly raised delivery challan / transportation challan /lorry receipt/dispatch clearance.
 - Duly filled Annexure-13A should be submitted in three sets (one for Consignee record, one for JREDA Hq. and one for JREDA's field Executive Engineer).
 - Geo-tagged Photographs of all the equipment (materials) at destination with signature & seal of Consignee/JREDA Officials. This record should be kept in the office of Consignee for verification.
 - Submission of the Insurance Documents and Warranty Certificates of the Components.
- (b) **24%** of the of Contract price shall be paid **after Installation, Testing & Commissioning** of complete project after submission of following documents:
- Original Commercial invoice raised from the state of Jharkhand for the Installtion, Testing & Commissioning made in triplicate (1+2).
 - Copy of duly raised delivery challan / transportation challan /lorry receipt/dispatch clearance.
 - Duly filled Annexure-13 Bshould be submitted in three sets (one for Consignee record, one for JREDA Hq. and one for JREDA's field Executive Engineer).
 - Certificate for minimum seven days of satisfactory performance with Geo-tagged Photographs of each Solar Mini grid village along with soft copy(Pendrive)
 - Submission of the Detailed Project Re-Commissioning Report in Booklet form
- (c) Rest **20%** of the Contract Price shall be paid **@4%** of the Contract Price on completion of every one year period of the 5 year CMC period. Payment for CMC can be released after submission of duty pledged DD/BG/FDR/TDR of 4% for each year valid up to CMC period. The BG/FDR will be release after submission of CMC documents in prescribed format. The Payment shall be released after submission of following documents:
- Original Commercial invoice raised from the state of Jharkhand for the supply made in triplicate (1+2).
 - Submission of monthly reports of CMC undertaken by the manufacturer as per Annexure-14

7.0 Dispatch Instructions:

All items/equipments shall be subject to Pre-Dispatch Inspection (PDI) by JREDA or its authorized representatives at the manufacturing site before their dispatch. The manufacturing

site must have sufficient testing facilities. The manufacturer will submit test report with regard conformity to technical specifications and details of materials in prescribed format for the items to be dispatched to work site of JREDA. However, equipments will be dispatched from the manufacturing site only after the receipt of "Dispatch Clearance" from JREDA after acceptance of test report. No consignment shall be dispatched without the receipt of dispatch clearance from JREDA. No PDI shall be done at any site other than the concerned manufacturing site. Successful bidders have to arrange necessary equipments for testing the materials to be supplied during the pre-dispatch inspection by JREDA at their manufacturer's unit. Failure to fulfill the PDI conditions shall lead to cancellation of work order and forfeiture of security deposit.

Supply, Installation & Commissioning for the above work must be completed in all respect within time schedule as per clause 39 of section 4 from the date of issue of the work order including Pre-Dispatch Inspection (PDI) of the materials.

8.0 Liquidated Damages for Delay in Completion & CMCO:

If the supplier fails in the due performance of the contract to deliver any part of the equipment or complete the work within the time fixed under the contract or any extension thereof granted to him by JREDA and/or to fulfill his obligations in time under the contract, he shall be liable to pay to JREDA @0.5% per week maximum up to 10% of work value delayed beyond contract period. The same will be applicable if monthly CMC report will not be submitted within a week of due date.

9.0 Risk & Cost:

If the contractor fails to complete the awarded work from the scheduled date of completion then JREDA will be at liberty to cancel the said work order and will get the full or part of left over work to be completed by way of engaging alternate contractor and completion of the said work shall be got completed at risk & cost of the failed contractor and failed contractor shall be liable to pay all the dues to JREDA.

10.0 Insurance:

The supplier shall arrange for transit and erection insurance of the materials & equipment's for setting up of Solar Photovoltaic System. The supplier shall also arrange for insurance of materials & equipment's up to CMCO period. In case of any theft or damage of equipment during CMC period the same will be responsibility of supplier to get it rectify at their own cost.

11.0 Assignment/ Sub-letting:

The Manufacturer shall not assign or sublet, manufacture, shop testing, packing & forwarding, transportation, transit insurance, supply in whole or part, and its obligations to any third party to perform under the order/contract.

In the event the manufacturer contravenes this condition, JREDA reserves the right to reject the equipment/work contract and procure the same from elsewhere at manufacturer's risk and cost. The Manufacturer shall be solely liable for any loss or damage which JREDA may sustain in consequence or arising out of such replacing of the contract work.

12.0 Completeness of Tender:

All fittings, assemblies, accessories, hardware items etc. & safety and protection devices as required shall be deemed to have been included in the tender, whether such items are specifically mentioned in the BoM or not.

13.0 Compliance with Regulations:

The supplier/contractor shall comply with all applicable laws or ordinances, codes approved standards, rules and regulations and shall procure all necessary municipal and/or other statutory bodies and government permits & licenses etc. at his own cost. The contractor shall leave the purchaser, Director, JREDA harmless as a result of any infractions thereof.

14.0 Agreement:

The successful qualified suppliers shall have to enter into an agreement in the office of the Director, JREDA, in prescribed format before commencement of supply within 7 (Seven) days with required Security Deposit.

15.0 Income Tax:

Without prejudice to the obligations of the supplier under law, any income tax which JREDA may be required to deduct by law/statute, shall be deducted at source and shall be paid to income tax authorities on account of the supplier. JREDA shall provide the supplier a certificate for such deductions of tax.

16.0 Training Program, After Sales Service and Availability of Spare Parts:

16.1 The responsibility of organizing training program will rest on the successful bidder. The training program will be organized in consultation with JREDA/Consignee. The training program will focus on operation and maintenance of the system. Printed leaflet/literature should be made available in Hindi by the Supplier regarding the operation and maintenance of their Solar Power Plant.

16.2 The Supplier shall depute authorized Service Engineer within 7 days from the date of the intimation of fault, and establish sufficient inventory of spares in the State in consultation with JREDA to provide satisfactory and uninterrupted services during the warranty period.

17.0 Force Majeure conditions:

In the event of either party being rendered unable by force majeure to perform any obligation required to be performed by them under this agreement, relative Obligation of the party affected by such force majeure shall be treated as suspended during which force majeure condition last.

The term force majeure shall have herein mean riots (other than among the contractor's employee), civil commotion, war (whether declared or not), invasion, act of foreign enemies hostilities, rebellion, insurrection, military coup to usurp power, act of god such as earthquake, lightening, floods, fires not caused by contractor's negligence and other cause which the contractor has no control and accepted as such by the Director, JREDA, whose decision shall be final and binding.

If the work is suspended by force majeure conditions lasting for more than 45 days, the purchasers shall have the option of canceling this contract in whole or part thereof, at its discretion. The contractor shall not claim for compensation for force majeure conditions.

18.0 Cancellation of Work Order:

JREDA will be at liberty to terminate/blacklist in part or full the awarded contract and / forfeit security deposit and/or performance guarantee without prejudicing its rights and affecting the obligations of the Contractor by giving 15 (Fifteen) days' notice in writing in the following events:

- (a) If the contractor/supplier is found defaulter for delayed supply, installation & commissioning or failure to deliver satisfactory performance or supply of substandard materials.
- (b) If the contractor/supplier fails to comply with the provision(s) of the contract including the responsibilities to fulfill the 5 years CMC as per the provisions mentioned.
- (c) If the Contractor/vendor is involved in any action of moral turpitude.
- (d) While taking decisions for blacklisting of the bidder, his past performance shall also be taken into account.

19.0 Jurisdiction of the Court:

All disputes would be settled within Ranchi Jurisdiction of court of law only.

Section-6 Technical Specification

NIB No: 09/JREDA/CMC/WS/OFF GRID/24-25

A. Technical Specification of existing Stand-alone SOLAR PV Power Plant

Introduction:

Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required.

Detailed Specifications of components:

1. Full capacity inverter should be provided to convert PV/ battery power into suitable AC power (230V/ 1P or 415V/ 3P +N) depending upon the requirement. Inverter should be a single inverter of full capacity or multiple inverters of smaller capacity to meet the full rating for the entire temperature range of 0-50 degrees.
2. Inverter should be microprocessor based with inbuilt power transformer so as to provide isolation between DC and AC side.
3. Inverter should have inbuilt protections against DC under voltage, DC over voltage, AC under voltage, AC over voltage, AC over frequency, AC under frequency.
4. All the inverter parameters, faults, warnings should be displayed on a central display unit visible from the front side.
5. Inverter should have the facility to cater to loads as well as export excess PV power into the grid. For this purpose, Inverter should have the facility to synchronize with the grid supply whenever grid is within its range of voltage (+/- 15% of nominal) and frequency (+/- 3 Hz). The functionality of exporting excess power should be field selectable for the end costumer.

Typical technical features of the inverter shall be as follows:

Switching devices	IGBT/MOSFET
Control	Microprocessor /DSP
Nominal AC output voltage and frequency (In case single phase inverters are offered, suitable arrangement for	415V, 3 Phase, 50 Hz
Grid Frequency Synchronization range	± 3 Hz or more
Ambient temperature considered	-20° C to 50° C
Humidity	95 % Non-condensing
Protection of Enclosure	IP-20(Minimum) for indoor. IP-65(Minimum) for outdoor.
Grid Frequency Tolerance range	± 3 or more
Grid Voltage tolerance	20% &± 15 %
No-load losses	Less than 1% of rated power
Inverter efficiency(minimum)	>93% (In case of 10kW or above)
Inverter efficiency (minimum)	> 90% (In case of less than 10 kW)
THD	< 3%
PF	> 0.9

REMOTE MONITORING

All the relevant parameters of PCU should be available for remote monitoring over internet using GPRS (4G/5G enabled) based monitoring solution. PCU shall have GPRS (4G/5G enabled) in ability based on SIM card which shall be provided by the bidder. The monthly charge of SIM card will be borne by bidder. The list of parameters should include:

Solar Charge Controller	PV Voltage, PV Current, PV Power, Daily PV Generation, Total PV Generation. (All above parameters to be included for all MPPT channels individually)
Inverter/ Mains Charger	<ul style="list-style-type: none"> • Inverter Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current • Daily & total Battery charging energy (kWh) • Daily & total Battery discharging energy (kWh) • Daily & Total load energy consumption(kWh) • Daily & Total energy import energy from Grid(kWh) • Daily & Total energy export energy from Grid(kWh) • Active Faults

SOLAR HYBRID INVERTER/PCU

Sl. No.	PARAMETERS	SPECIFICATIONS
1	Output Voltage	230V for single phase and 230/415Volts \pm 1% three phase, 4 wire output for three phase.
2	Output Frequency	50Hz \pm 0.5% during standalone Inverter/PCU operation. Inverter/PCU to follow generator frequency up to \pm 3 Hz of the nominal output frequency during synchronized operation
3	Rating	as stated below from 03KW -150KW
4	Surge Rating	Up to 150% of the continuous rating for a minimum of 5 seconds

5	Waveform	Sine wave output
6	THD	Less than 4%
7	Efficiency	>90% peak efficiency for single phase units. >92% peak efficiency for three phase units.
8	Regulation	Better than 2%
9	Phase Load imbalance	100% between phases for 3 phase units.
10	Internal Protection System	<ul style="list-style-type: none"> • Inverter/PCU overload • Short circuit protection • Over/under AC voltage protection • Over/under frequency protection • Over/under battery voltage protection
11	Front Panel Display (Inverter/PCU)	<ul style="list-style-type: none"> • PV Volts, Amps, Power. • Inverter/PCU O/P Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current • Mode of Operation, Active Faults • Mimic diagram
12	Circuit Breakers	<ul style="list-style-type: none"> • PV (each Channel) • Battery • Mains • Load
13	Environmental	
14	Temperature Range	0-50 degrees ambient

15	Humidity	0-90% non-condensing
16	Enclosure	IP-20 minimum
17	Data Logging	All the relevant parameters should be stored periodically in a USB stick/ pen drive/ flash drive to analyse the present and past data
18	Event Scheduling	<p>It should be possible to set events on a 24 hour scale. The events shall include:</p> <ul style="list-style-type: none"> ➤ Sleep Mode. ➤ Grid charge ➤ Grid Disconnect. ➤ Grid Export. ➤ Shut Down. <p>If configured, these events will force the PCU to enter that particular mode.</p>

REMOTE MONITORING

All the relevant parameters of PCU should be available for remote monitoring/ controlling over internet using GPRS based monitoring solution. The list of parameters should include:

5.1	Solar Charge Controller	PV Voltage, PV Current, PV power, Daily Generation, Total Generation. (all above parameters to be included for all MPPT channels individually)
5.2	Inverter/PCU/ Mains Charger	<ul style="list-style-type: none"> • Inverter/PCU Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current • Active Faults

There should be facility to turn on/ off the unit remotely using GPRS based monitoring solution. All the data should be downloadable in form of excel sheets from the portal. The portal should be accessible from anywhere through a URL, user ID and password.

a. Battery Bank

The tubular VRLA/GEL batteries must be conforming to the programme of Ministry of New and Renewable Energy. The battery bank capacity shall be of different capacities as specified in the price schedule, of tubular VRLA/GEL Battery of 2 volt cells. The general specifications shall be as under:

1. The battery bank shall consist of required number of deep-discharge electrochemical storage cells, suitably interconnected as required. Parallel connections of storage cells will be discouraged.

2. The cells shall be capable of deep discharge and frequent cycling with long maintenance intervals and high columbic efficiency. Automotive or car batteries shall not be accepted.
3. The nominal voltage and capacity of the storage bank shall be selected and specified by the supplier in the Bid.
4. The self-discharge rate of the battery bank or individual cell shall not exceed four (4) percent per month.
5. The permitted maximum Depth of Discharge (DOD), shall not be more than 80%.
6. The cells shall include explosion proof safety vents.
7. Suitable number of corrosion resistant storage racks shall be supplied to accommodate the cells tester and other accessories. The rack design shall be such that minimum space is required, without any way obstructing the maintenance requirements. For metallic racks, standards specified for control panel enclosures and other metallic shall govern.
8. All the connectors should be insulated except for the end portions.
9. Charging instructions shall be provided along with the batteries.
10. A suitable battery rack with interconnections & end connector shall be provided to suitably house the batteries in the bank.
11. The batteries shall be suitable for recharging by means of solar modules via incremental / open circuit regulators.
12. Battery interconnecting links shall be provided for interconnecting the battery in series and in parallel as needed and shall be Lead coated heavy duty copper strips.
13. Connectors for inter cell connection (series / parallel) shall be maintenance free screws. Front covers shall be provided for each battery bank.
14. The operating range will be 0°C to +55/60°C.
15. AH Efficiency: >95% and WH Efficiency: >85%
16. Recombination Efficiency shall be >98%
17. Self-Discharge of battery shall be <0.5% per week at 27°C.

The minimum rating of battery voltage (V) and Ah at C10 rate of discharge of different villages should be as following:

S. No.	Capacity of Power	Battery Bank Voltage	Battery capacity Ah @8.4 VAH/Wp
	Plant (kW)		
1	1	48	175
2	2	48	350
3	3	48	525
4	4	48	700

5	5	96	437.5
6	6	96	525
7	7	96	612.5
8	8	96	700
9	9	96	787.5
10	10	120	700
11	15	240	525
12	20	240	700
13	25	240	875
14	30	240	1050
15	40	240	1400
16	50	240	1750
17	60	240	2100
18	70	240	2450
19	80	240	2800
20	90	240	3150
21	100	240	3500

Battery Rack

Battery rack should be of matured treated Salwood duly painted single tier or two tier (if required) or epoxy coated MS structure (for VRLA GEL Cells) with rubberized coating on battery runners. Placement of battery should be such that maintenance of the battery could be carried out easily. The non-reactive acid proof mat should be provided to cover the entire floor space covering the battery rack. Battery rack should compulsorily be placed on the appropriate rubbers pads to avoid the contact of racks with the floor, and to protect wooden rack particularly from termite.

1. Solar photo voltaic modules:

- 1.1 SPV modules and BOS including power conditioners/inverter, charge controller/ MPPT units, storage batteries, cables used in SPV power generation plant should strictly have minimal technical requirement/ standards as per latest MNRE guidelines. Technical specifications defined in this section notwithstanding, the most recent technical specifications of MNRE, till the time of submission of Bid, shall supersede the specifications defined in this Bid document and Bidders shall have to abide by the same. The Bidders are advised to keep themselves updated regarding the same.
- 1.2 If specifications of any component are not provided/mentioned in RfP documents, the same shall be as per BIS/ IS/ IEC specifications applicable at the time of submission of Bid.

1.3 Technical specification for solar photo voltaic modules & cells

- 1.3.1 Mono/multi-crystalline Silicon solar photo-voltaic modules:

- a) The SPV modules must conform to the latest edition of any of the following IEC/equivalent BIS standards for SPV module design qualification and type approval:
 - i. Crystalline silicon terrestrial SPV modules - IEC 61215/IS14286
 - ii. Thin film terrestrial SPV modules - IEC 61646/Equivalent IS (Under Dev.)
 - iii. Concentrator SPV modules & assemblies - IEC 62108
 - iv. For the SPV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701
 - v. The rating of each individual module should not be less than 335Wp at Standard Test conditions (Higher ratings can be used) and shall meet following minimum requirement:
 - Efficiency of module $\geq 17\%$
 - Fill factor shall be greater than 75%.

1.3.2 In addition, the modules must conform to IEC 61730 Part 1-requirements for construction & Part 2-requirements for testing. For safety qualification or equivalent IS shall be applicable.

1.4 Other details of technical specification solar photo voltaic modules

- 1.4.1 SPV modules used in solar power plants / systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of ten (10) years and 80% at the end of twenty five (25) years. All specifications refer to the Standard Test Conditions (STC). Above modules should be as per latest MNRE / IEC norms & tested at test centres accredited by MNRE/ NABL.
- 1.4.2 The panel should be supplied with a plastic coated thermal sticker to be affixed at the back side of SPV Module which contains the matter in English / Hindi about warning against illegal use of SPV module.
- 1.4.3 Protective devices against surges at the SPV module shall be provided. Low voltage drop bypass diodes shall be provided.
- 1.4.4 PV modules must be tested and approved by one of the IEC authorized test centres.
- 1.4.5 The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- 1.4.6 The Bidder shall carefully design and accommodate requisite numbers of the modules to achieve the rated power in his Bid.
- 1.4.7 Other general requirement for the PV modules and subsystems shall be the following:
 - a) The rated output power of any supplied module shall have tolerance of $\pm 3\%$.
 - b) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than two (2) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - c) The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have

hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

d) IV curves at STC should be provided by Bidder.

1.4.8 Identification and traceability

- a) Each SPV module must use a RF identification tag (RFID). RFID shall be mandatorily placed inside the module laminate. RFID must contain the following information:
- i. Name of the manufacturer of SPV Module
 - ii. Name of the manufacturer of solar cells
 - iii. Month and year of manufacture (separately for solar cells and module)
 - iv. Country of origin (separately for solar cells and module)
 - v. I-V curve for the module
 - vi. Peak Wattage, I_m , V_m and PF for the module.
 - vii. Unique Serial No and Model No of the module.
 - viii. Date and year of obtaining IEC SPV module qualification certificate.
 - ix. Name of the test lab issuing IEC certificate.
 - x. Other relevant information on traceability of solar cells and module as per ISO 9000 series.

1.5 Warranties

1.5.1 Material Warranty:

- a) Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (5) years from the date of sale to the Bidder
- b) Defects and/or failures due to manufacturing
- c) Defects and/or failures due to quality of materials
- d) Non- conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s).

1.6 Fencing:- The contractor shall provide chain link fencing with barbed wire at top to protect the entire plant premises for restriction the entry of trespassers. The minimum height of the fencing at any point from ground shall be 1.5 mtr. The chain link of 50mm x 50mm diamond mesh of 10-gauge galvanized steel wire with 12-gauge barbed wires at top (02 numbers) is to be provided. The Contractor's shall be supplying, fabricating and fixing aligning vertical post of 75mm x 75mm x 6mm with cross bracing both side of ISA 45mm x 45mm x 5mm and both bracing shall be fixed by nut bolt assembly at intersecting point. Also, line wire at top and bottom of chain link mesh of 8 gauge is to be provided. The chain link fencing shall be fixed in ground by minimum 450mm deep foundation. At bottom of the fencing, 230mm thick brick masonry of 150mm depth shall be provided to avoid entry of any animal from the bottom. The brick masonry shall be rested on 100mm thick of M15 grade Plain cement concrete. The brick masonry shall be covered by 12mm plaster in 1:4 Cement Mortar.

1.7 Power Distribution Network

Installation & Supply of minimum three (3) domestic light points along with 3 nos. LED lamps of 9W/10W/11watt each & Installation of one socket point (60W) & one socket point (100 W) thus a total of 193 W upto 200 W will be taken with proper switching arrangement, in every selected house hold of the village with complete fittings of wiring in proper manner within conduit installed on saddle/ casing capping with prior approval of JREDA. In house wiring

should be done with Heavy duty wire/ cable. P.V.C. Insulated twisted bright annealed Copper wire of 1.5 Sq. mm (3core) or 2.5 Sq. mm (2core) size every light point & socket point should be provided with individual switch of 6A rating and should be of reputed make.

1. Installation of domestic connection to every household shall be through service pipe as per the standard electrical fittings. It shall use cable of aluminum wire PVC insulated sheathed and single core cable (IS694/1990 of 6 sq.mm) of reputed make.
2. Installation of appropriate load limiting switch / fuse for controlling domestic / street lighting connections, as per requirement of the site.
3. Supply, installation & grouting of 8 meters MS Poles/tubular pole/PCC pole as per ISI/ JBVNL norms (or if the Bidder has better drawing he may attach the same with additional offer) for overhead / underground distribution network of cables at village/site. All poles/street lights should be numbered by oil paint in the specified format of JREDA. Two numbers of MS sign boards (each of 2' x 2.5' size) has to be supplied, painted (in the same manner as pole painting instructions) & clamped on the poles of the PDN as per JREDA's instructions.
4. Supply, installation & commissioning of cabling from pole to pole & pole to house. Cabling between pole to pole/ pole to house can also be done as per Bidder's design with prior approval of JREDA.
5. Supply, installation & commissioning of one number of 18 W LED Street light luminary for five households each.
- 6 Supply of 1 number of street light per 5 households.
- 7 Supply & installation of earthing kits, stay wire sets with complete set for poles etc. as per norms where ever required.

Annexure-1

Format for Covering Letter

09/JREDA/CMC/WS/OFF GRID/24-25

(To be submitted in the official letterhead of the company)

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002.

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

Sir,

We are hereby submitting our offer in full compliance with the terms and condition of the above NIB No. We have submitted the requisite amount of Tender Fee in the form of Demand Draft & "Earnest Money" in the form of Bank Guarantee/Demand Draft/TDR/FDR valid for twelve months.

The tender is uploaded on www.jharkhandtenders.gov.in as per the requirement of the website separately Technical Bid & Financial Bid.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note: MSME bidders of Jharkhand must submit necessary documents for claiming exemption of EMD and Bid fee.

Information About The Bidding Firm
09/JREDA/CMC/WS/OFF GRID/24-25

(To be submitted in the official letter head of the company)

SL. No.	Particulars	
1.	Name of the Bidder	
2.	Address of Bidder with Telephone, Fax, email	
3.	Address of the Registered Office	
4.	Address of the works	
5.	GPS Co-ordinate of Registered Office	
6.	GPS Co-ordinate of Factory Campus	
7.	Name & Designation of Authorized Signatory for Correspondence (Attach Power of Attorney as per Annexure-6)	
8.	Nature of Firm (Proprietorship/Partnership /Pvt. Ltd./Public Ltd. Co./Public Sector)	
9.	Permanent Account Number (PAN) (Attach proof)	
10.	Firm's Registration Number (Attach proof)	
11.	GST Number (Attach proof)	
12.	Details of in-house testing facility (Attach Proof)	
13.	Office/ Dealer and Service network in Jharkhand (Give details)	
14.	Particulars of Earnest Money and Bid fee	
15.	Place where Materials will be Manufactured	
16.	Place where Materials will be Available for Inspection	
17.	Other details and remarks, if any	

Yours faithfully,

(Signature of Authorized Signatory)

Name :
 Designation :
 Company seal :

(Separate sheet may be used for giving detailed information duly signed)

Declaration by the Bidder

**09/JREDA/CMC/WS/OFF GRID/24-
25**

(To be submitted in the official letter head of the company)

I/We _____ (here in after referred to as the Bidder) being desirous of tendering for the rate contract for work under the above mentioned tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the tender document, DO HEREBY DECLARE THAT

1. The Bidder is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
2. The Bidder is capable of executing and completing the work as required in the tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
4. The Bidder has no collusion with any employee of JREDA or with any other person or firm in the preparation of the bid.
5. The Bidder has not been influenced by any statement or promises of JREDA or any of its employees, but only by the tender document.
6. The Bidder is financially solvent and sound to execute the work.
7. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of JREDA.
8. The information and the statements submitted with the tender are true.
9. The Bidder is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
10. The Bidder has not been debarred/blacklisted by any SNA/ Government Dept. /PSU.
11. This offer shall remain valid for Six months from the date of opening of the tender.
12. The Bidder gives the assurance to execute the tendered work as per specifications terms and conditions.
13. The Bidder confirms the capability to supply and install required no. of systems per month.
14. The Bidder accepts that the earnest money be absolutely forfeited by JREDA if the Bidder fails to undertake the work or sign the contract within the stipulated period.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format For Financial Requirement – Annual Turnover**09/JREDA/CMC/WS/OFF GRID/24-25**

To,

The Director,
 Jharkhand Renewable Energy Development Agency
 3rd Floor, S.L.D.C. Building,
 Kusai Colony, Doranda,
 Ranchi - 834002

Dear Sir,

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

We certify that the Bidding Company had an average Annual Turnover of Rs. -----
 ----- based on audited annual accounts of the last three years ending 31 03.2023

Sl. No.	Financial Year	Turnover (in Rupees)
1	2020-21	
2	2021-22	
3	2022-23	
	Average Annual Turnover	

UID No.:

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Date:

Format For Financial Requirement - Net Worth Certificate**09/JREDA/CMC/WS/OFF GRID/24-25**

To,

The Director,
 Jharkhand Renewable Energy Development Agency
 3rd Floor, S.L.D.C. Building,
 Kusai Colony, Doranda,
 Ranchi - 834002

Dear Sir,

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

This is to certify that Net worth of _____ {insert the name of Bidding Company}, as on 31st March 2023 is Rs _____. The details are appended below.

Particulars	Amount (In Rs.)
Equity Share Capital	
Add: Reserves	
Subtract: Revaluation Reserve	
Subtract: Intangible Assets	
Subtract: Miscellaneous Expenditure to the extent not written off and carried forward losses	
Net Worth as on 31 st March 2023	

UID No.:

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Format of Power of Attorney for Signing Bid

09/JREDA/CMC/WS/OFF GRID/24-25

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Know all men by these presents, we(name and address of the registered office) do hereby constitute, appoint and authorize Mr. / Ms. (name and residential address) who is presently employed with us and holding the position of.....

as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for **NIB No: 09/JREDA/CMC/WS/OFF GRID/24-25** including signing and submission of all documents and providing information / Bids to Jharkhand Renewable Energy Development Agency, representing us in all matters before [Insert Name], and generally dealing with Jharkhand Renewable Energy Development Agency in all matters in connection with our bid for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

For _____Signature

Accepted by

..... (Signature)

(Name, Title and Address of the Attorney)

Note: The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, lay down by the applicable law and the charter documents of the executants (s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

Details of Orders Received and Executed in Last 7 Years

09/JREDA/CMC/WS/OFF GRID/24-25

Details of Orders Received & Executed by the Manufacturer/Supplier for supply of SPV Power Plant to SNA/ Govt. Organization during Last Seven Years.

SL. No.	Name of Agency/ Organization	Purchase Order No., Date & Ordered Qty.	Capacity of SPV Power Plant	Delivery Schedule	Qty. Supplied Within Delivery Schedule	Qty. Supplied After Delivery Schedule	Date of full Supply	Date of Performance certificate released

Yours faithfully,

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note:

- (a) Attach Photocopies of Work Orders
- (b) Attach Photocopies of Work Completion Certificates
- (c) Attach Photocopies of Certificate of Satisfactory Performance Issued by Concerned Nodal Agency/PSU/ Govt. Organization
- (d) Separate sheet may be used for giving detailed information in seriatim duly signed. This bid Performa must be submitted duly signed in case separate sheet is submitted.

Annexure-7 (b)

(PERFORMANCE CERTIFICATE ON THE OFFICIAL LETTER HEAD OF CONCERNED DEPARTMENT WITH SEAL AND SIGN BY AUTHORIZED SIGNATORY)

CERTIFICATE OF PERFORMANCE - SPV POWER PLANTS

This is to certify that Name of Bidder, Address of Registered Office has successfully completed the works of Comprehensive Maintenance Contract & Operation of.....Nos. SPV power plants (.....Scheme) against various Sanction of Name of Agency at various locations in.....State, as per following details:-

Sl. No.	Capacity of solar power plants	Year & Scheme	Total no. system	Remarks

This workmanship and performance of the above installed systems are found satisfactory and are in successful operation.

Seal & Sign (Authorised Signatory)

**Format for Technical Details
09/JREDA/CMC/WS/OFF GRID/24-25**

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

NOTE Submitted village wise separately**

S. N	Particulars	Details	Make
1	Make of Battery and Origin		
2	Type of Battery		
3	No. of Battery		
4	Each Battery Voltage		
5	Each Battery Ah		
6	Battery Bank rating (Voltage & Ah)		
7	Make of PCU and Origin		
8	Rating (KVA)		
9	No. of PCU		
10	SPV Modules, Specification & Make		
11	No. of SPV Modules		
12	Serial nos. of SPV Modules		
13	Serial nos. of LED Luminaries & Make		
14	Meter specification & Quantity		
15	RMS Device specification & Quantity		
16	Any Other Component		

Undertaking

- We agree to supply, installation & commissioning, renovation, the Power Plant as per NIT specifications.
- We agree to give performance guarantee as specified and to abide by the scope of the guarantee as prescribed under the tender document.
- We agree to operate as per the terms & conditions of the tender.

We undertake to supply quality products for promoting energy efficiency in the era of lighting systems.

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

- During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNRE specifications.

Technical Detail Form
09/JREDA/CMC/WS/OFF GRID/24-25
 (To be submitted in the official letter head of the company)
Warrantee Card

1.	Name & Address of the Manufacturer/ Supplier of the System	
2.	Name & Address of the Purchasing Agency	
3.	Date of Supply of the System	
4.	Details of Battery	
(a)	Name of the Manufacturer	
(b)	Make	
(c)	Model	
(d)	Batch/Serial No(s).	
(e)	Month & Year of Manufacture	
(f)	Rated V & AH Capacity at C/20 or C/10 Rated at 27°C	
(g)	Guarantee Valid Up To	
5.	Designation & Address of the Person to be Contacted for Claiming Warrantee Obligations	

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

1. The Guarantee card to be supplied with the system must contain the details of the systems supplied as per format given above.
2. During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNRE specifications.

Annexure-9 B

Warranty Card

09/JREDA/CMC/WS/OFF GRID/24-25

(To be submitted in the official letter head of the company during the supply of the materials)

1.	Name & Address of the Manufacturer/ Supplier of the System	
2.	Name & Address of the Purchasing Agency	
3.	Date of Supply of the System	
4.	Details of PV Module(s) Supplied in the System	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Serial No.	
	(e) Wattage of the PV Module(s) under STC	
	(f) Guarantee Valid Up To	
5.	Details of PCU	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Batch/Serial No(s).	
	(e) Month & Year of Manufacture	
	(g) Guarantee Valid Up To	
6.	Details of Electronics & Other BOS Items	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Serial No(s).	
	(e) Month & Year of Manufacture	
	(f) Guarantee Valid Up To	
7.	Designation & Address of the Person to be Contacted for Claiming Warranty Obligations	

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

1. The Guarantee card to be supplied with the system must contain the details of the system supplied as per format given above.
2. During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNRE specifications.

Annexure-10

Quoted Village details as described in annexure under West Singhbhum District

09/JREDA/CMC/WS/OFF GRID/24-25

(To be submitted on the letterhead of the company/firm)

Sr. No.	Block	Village	Census Code	Plant Capacity (kWp)	Quoted (YES/NO)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
-					
-					
-					

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Price Bid**09/JREDA/CMC/WS/OFF GRID/24-25**

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

Sr.No.	Block	Village	Census Code	Capacity(kWp)	Cost of Repair, Replacement, Renevotion, Metering ,RMS etc. Complete work (INR) Excluding GST	Buy back of existing Battery, with inter cell connectors and stack box & other electronics components ,etc at SPV Minigrid Plant location (INR) Excluding GST	Net cost of renovation, repair etc. after buyback Excluding GST	CMC cost of 5 years Excluding GST	Total Project Cost Excluding GST	Total Project Cost Including GST
1										
2										
3										
4										
5										
6										

- 1 Above quoted prices are complete in all respect as per Technical Specifications.
- 2 Certified that rates quoted for above mentioned all components are as per specifications, terms & conditions mentioned in the bid document.
- 3 Price should be quoted in complete numeric figure and words.

(Signature of Authorized Signatory)Name:
Designation: Company
Seal:

Annexure-12

Format for Submitting Bank Guarantee for Earnest Money
09/JREDA/CMC/WS/OFF GRID/24-25

(To be submitted in Rs. 100/- Non-Judicial Stamp Paper to be purchased in the name of the issuing bank)

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002.

WHEREAS (Supplier's name) (hereinafter referred to as "Supplier"), a company registered under the Companies Act, 1956 and having its registered office at is required to deposit with you, the Purchaser, by way of Earnest Money Rs. (Rupees only) in connection with its tender for the work with reference to Notice Inviting Bid (NIB) No. dated.....as per specification and terms and conditions enclosed therein.

WHEREAS the Supplier as per "Notice Inviting Bid, point no. 3 Earnest Money" has agreed to establish a Bank Guarantee in Your favour through us valid up to(date) instead of deposit of earnest money in cash.

WHEREAS you have agreed to accept a Bank Guarantee from us in instead of earnest money in cash from the Supplier.

1. We (Bank) hereby agree and undertake to pay you on demand the said amount of Rs..... (Rupees only) without any protest or demur in the event the Supplier/Tenderer after submission of his tender, resiles from or withdraws his offer or modifies the terms and conditions thereof in a manner not acceptable to you or expresses his unwillingness to accept the order placed and/or letter of intent issued on the Supplier/Tenderer for the work under "Notice Inviting Bid Ref. No.:" **09/JREDA/CMC/WS/OFF GRID/24-25** .
2. Your decision as to whether the Supplier/Tenderer has resiled from or has withdrawn his offer or has modified the terms and conditions thereof in a manner not acceptable to you or has expressed his unwillingness to accept the order placed and/or Letter of Intent issued by you on the Supplier/Tenderer for the work under "Notice Inviting Bid Ref. No. : **09/JREDA/CMC/WS/OFF GRID/24-25** in this regard, shall be final and binding on us and we shall not be entitled to question the same.

3. Notwithstanding anything contained in the foregoing, our liability under this Guarantee shall be restricted to Rs. (Rupees only).
4. This Guarantee shall remain valid and in full force and effect up to (Date) and shall expire thereafter unless an intimation is given to the Bank by you earlier in writing discharging us from our obligation under this Guarantee.
5. We shall not revoke this Guarantee during its currency except by your consent in writing.
6. This Guarantee shall not be affected by any change in the constitution of the Supplier/Tenderer or yourselves or ourselves but shall ensure to your benefit and be enforceable against our legal successors or assignees by you or your legal successors.
7. Notwithstanding anything contained herein above unless a demand or claim under this Guarantee is made on us in writing within six months from the date of expiry of this Guarantee we shall be discharged from all liabilities under this Guarantee thereafter.
8. We have power to issue this Guarantee under our Memorandum and Articles of Association and the undersigned who is executing this Guarantee has the necessary power to do so under a duly executed Power of Attorney granted to him by the Bank.

Signed and Delivered

For and on behalf ofBank.

(Banker's Name)

Name of Bank Manager:

Address

.....

Annexure-13 A

Certificate of Delivery of Solar Mini/Micro Grid/Solar received by the Consignee/ JREDA Official as Proof of Compliance by the Supplier

-

09/JREDA/CMC/WS/OFF GRID/24-25

Certified that we have received the following materials ofNos. of Solar Systems and grid

1. Name of Solar Mini/Micro grid Plant :-village.....,Block.....,District.....,Capacity.....
2. Nos. & Capacity of Batteries:.....
2. Nos. & Capacity of Modules:
3. Nos. & PCU Rating:
4. Nos. & Meter specification.....
5. RMS System for old working PCU.....
6. Any other Components.....
7. Date of supply.....

Attachment :-(Geo-tag Photographs of Materials (Module, Battery, PCU, Balance of system, etc with serial Nos.)

Above materials have been supplied by M/s.....

Signature & Seal of Supplier

Signature of Consignee along with Seal/JREDA Official:.....

Date.....

Certificate of JREDA Representative

Certified that above-mentioned materials have been inspected as per the specification and handed over to the Supplier at site for installation & commissioning.

Signature & Seal of JREDA Representative

Annexure-13 B

Certificate of Installation of Mini/Micro Grid System with Distribution Network with Households
received from the Consignee as Proof of Compliance by the Supplier

NIB No: 19/JREDA/OFFGRID/RC/23-24

Certificate Name of Beneficiary:.....

Address of Beneficiary:.....

.....

Certified that M/s has successfully installedNos. ofkWp Solar Mini/Micro Grid System and Distribution Network ofkm on datedand are in working condition since seven days:

1. Serial nos. of SPV Modules ,Capacity & Make:-----
2. Serial nos. of Batteries, capacity & Make:.....
3. Serial nos. of PCU, capacity & Make
4. Serial nos. of LED Luminaries, Rating & Make:.....
5. Other materials:.....

Attachment: Photographs of installed system (Three views of each component of each system)

Signature of Consignee

Signature of Supplier along with Seal

Date.....

Date.....

Signature of JREDA representative

Date.....

Format for O&M and CMC Report

09/JREDA/CMC/WS/OFF GRID/24-25

[On the letterhead of Bidding Company]

To,

The Director,
 Jharkhand Renewable Energy Development
 Agency 3rd Floor, S.L.D.C. Building,
 Kusai Colony,
 Doranda, Ranchi –
 834002.

Dear Sir,

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

Date of Installation.....
 JREDA Dispatch Order No..... Dated.....
 Month of OMC and CMC.....
 Date of Visit.....

S. N.	Place of Installed System	System Details		CMC activities undertaken by Technician	Remarks
		Solar PV Module			
		Battery			
		PCU /Inverter			
		Any other Component			

Enclosed:
 (Tick the enclosed Documents)

- | | |
|--|--------|
| 1. Daily Generation Details | Yes/No |
| 2. Scan Copy of Site Logbook Registers | Yes/No |
| a. Module Cleaning Register | |
| b. Site Breakdown Register | |

(Signature of Authorized Signatory)

Name:
 Designation:
 Company Seal:

**Format for Site Logbook Registers(Along
with Annexure 14)**

Format: 1

Format for Module Cleaning Register				
Date	No. of Cycle	No. of Module Cleaned	Cleaned By	Remark

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format: 2

Format for Site Breakdown					
Date	Time	Total Hrs. of Breakdown	Breakdown Type (Fault Message displayed on Screen)	Attended By	Remark

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

**Contact Person for the NIB
09/JREDA/CMC/WS/OFF GRID/24-25**

[On the letterhead of Bidding Company]

1	Name of Proprietor/ Partners/ CMD/Director	
2	Contact Person name for the NIB	
3	Designation	
4	Contact No. (phone & mobile)	
5	Fax No.	
6	e-mail ID	
7	Corresponding address with pin code	
8	contact Person name for the NIB Contact Person name for Project Execution Contact Person Name for Project Administration	
9	contact No. (mobile/phone) for the NIB for the Project Execution for the Project Administration	
10	Remarks	

(Signature of Authorized Signatory)Name:

Designation: Company Seal:

Check List of Technical bid
NIB 09/JREDA/CMC/WS/OFF GRID/24-25

Annexure-16

S. No.	Particulars	Yes / No	Page No.
1	D. D. towards Tender fee.		
2	Duly pledged EMD		
3	GST certificate.		
4	PAN Card		
5	Firm's registration certificate/ Registration certificate of MSE of Jharkhand.		
6	Certificate issued by Industry Dept. or MNRE for system manufacturing or Registration Certificate for Electrical Contractor (Class-I) issued by Energy Department, Govt. of Jharkhand.		
7	Audited Balance sheet of last three years.		
8	Test certificate of Battery,PCU & Modules		
9	Covering letter (Annexure-1)		
10	Information about the bidding firm (Annexure-2)		
11	Declaration by the bidder (Annexure-3)		
12	Annual Turn over (Annexure-4)		
13	Net Worth certificate (Annexure-5)		
14	Format for power of attorney for signing of bid (Annexure-6)		
15	Proof of supply/execution of SPV systems/ materials in any SNA/Govt. organization/PSU in the last seven years. Attach copy of orders & its satisfactory completion certificate (Annexure-7)		
16	Technical details & make of the Equipments to be supplied		
17	Contact Person for the NIB (Annexure-15)		

** Please write page number as in the box.*

Please ensure:

- i) That all information is provided strictly in the order mentioned in the check list mentioned above.
- ii) Bidders are advised to strictly confirm compliance to bid conditions and not to stipulate any deviation/conditions in their offer. Subsequent to bid submission, JREDA may or may not seek confirmations/clarifications and any offer(s) not in line with Bid conditions shall be liable for rejection.
- iii) Any clarification/confirmation bidder may require shall be obtained from JREDA before submission of the bid. Bidder shall submit complete bidding document including subsequent amendment, modification and revision, duly signed and stamped as a token of having read, understood and accepted all the terms and condition mentioned therein.

(Signature of Authorized Signatory)Name:
Designation: Company Seal:

Bidder's Declaration
(Mandatory Format)

N No: 09/JREDA/CMC/WS/OFF GRID/24-25

[On Bidders Letterhead]

To

The Director
Jharkhand Renewable Energy Development Agency (JREDA)
3rd Floor, SLDC Building, Kusai Colony,
Doranda Ranchi-834 002, Jharkhand

Sub: Bidder's declaration for Response to Bid for "**Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required "**

dated [insert date]

Dear Sir,

We hereby declare that:

- a. We have gone through the Bid document and verified all terms and conditions.
- b. We have visited to the project location and understood the exact system requirement of JREDA for(Enter No. of quoted village as described in Annexure 10)Solar off-grid villages under West Singhbhum District of Jharkhand.
- c. We are submitting Geo-Tagged Photographs and duly filled site survey form as described in Annexure 17 B as proof of site visit/site survey.**
- d. We shall have no objection if disqualify on the ground of not visiting the project site before quote rate in BOQ and non-submission of duly filled site survey form & Geo-Tagged Photographs.**
- e. I / we have never ever been blacklisted and / or there were no debaring actions against us for any default in works of Jharkhand Renewable Energy Development Agency (JREDA) OR any other Organization.
- f. I/we meet all qualifying criteria, subject to be disqualified if I/we:
 - i. made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or
 - ii. Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures
 - iii. Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to JREDA.

In the event of any such information pertaining to the aforesaid matter found at any given point of time either during the course of the contract or at the bidding stage, my bid/contract shall be liable for truncation / cancellation / termination without any notice at the sole discretion of the JREDA.

Failure to comply any points due to any technical or non-technical questions arises due to any presentation in Bid document, Jharkhand Renewable Energy Development Agency (JREDA) will have final say and we hereby agree to that condition.

Dated the _____ day of _____, 20__

Thanking you,
yours faithfully,

Name: Designation:
Place:

Checklist for Off Grid Solar Mini/Micro Grid Plant

NIB 09/JREDA/CMC/WS/OFF GRID/24-25

Village Inspection Report**NOTE**** Please fill Village wise separately

Parameters	Details
Name of Bidder/Contractor	
Date of Site visit	
Name of village	
Name of District	
Name of Block	
Census Code	
Total no. of Households (HHs)	
Total No. of Community Building	
Total Capacity(kWp)	
Current Status of Solar Mini/Micro Grid Plant	
Mobile Connectivity in village (Yes/No)	
GPS Coordinate of System	
Geo-tag site Photograph (Attached)	
Plant Distance from Block office (In km)	
Type of approach Road to reach village	
Whether Village Electrified through Conventional Grid (Yes/No)	
Nearest Power Sub Station & Distance(In km)	

Details of Solar Mini/Micro Grid Plant in the Village:-

Sr. No.	Mini Grid Factors	Details observed in Solar Mini Grid village	
1	Installation of Solar Module	i. No. of Solar Module ,Make & Rating	
		ii. AJB available (yes/No)	
2	Control Room	i. Dimension (L*B*H)in feet	
		ii. Window available (Yes/No)	
3	Solar Inverter (PCU)	i. PCU Rating Make	
		ii. ACDB available (Yes/No)	
4	Battery	i. No. of solar Battery ,Make & Rating	
5	PDN	i. Total No. of HHs	
		ii. Total No. of Pole	
		iii. Total No. of Switch Board Socket Point	
		iv. No. of LED Bulb per HHs & Rating	
		v. No. of Street Light available & Rating	
		vi. Total Approximate Length of PDN (Km)	
		vii. Size of Cable for PDN	
6	Earthing System	i. Total No. of Earthing System	
		ii. Earth Pit Construction available (Y/N)	
		iii. Size of Earthing Cable	
7	Lightning Arrestor	i. LA available (yes/No)	
		ii. No. of LA	
		iii. LA height from Installation	
8	Safety Equipment Details	i. Fire Extinguisher available (Y/N)	
		ii. Safety Bucket available (Y/N)	
9	General	i. Sign Board Available(Y/N)	Yes () No ()
		ii. Consumer Mobile No.	

Remarks/Notes :-

(Signature of Authorized Signatory)

Name:Designation:

Company Seal:

JOINT COMMISSIONING REPORT OF SOLAR POWER PLANTS

Sub: Selection of Agencies for five Years Comprehensive Maintenance Contract & Operation (CMCO) of total 47 nos. of Solar Mini/Micro grid plant installed under West Singhbhum District in Jharkhand including repairing/ replacement of PCUs, Modules & Batteries and other components as and where required .

1. JREDA Work Order No.:

2. Name of Contractor:

3. Solar Power Plant Location:

4. Solar Power Plant Capacity:

5. Date of Commissioning:

Date:

Place:

Seal and Signature of the Contractor:
Name:
Designation

JOINT COMMISSIONING REPORT OF SPV POWER PLANTS

- 1. Name of the Solar Minigrid village :
- 2. Capacity of SPV off-grid Power Plant installed----- kWp.
- 3. Work Order No.:
- 4. Actual Date of Commissioning:
- 5. Stipulated Date of commissioning as per W.O.:
- 6. Extension granted till: Not Applicable vide JREDA letter no. Not Applicable
- 7. Name & address of the contractor:
- 8. This is hereby certified that the contractor -----has successfully installed & Commissioned the ----- kWp SPV off-grid Power Plant at----- on --.--.2023 with major Components as mentioned below in **Annexure I** appended hereto, as per the terms and conditions of the workorder mentioned at Serial No. (3) Above.
- 9. The work order has been fully executed as per the work order and the SPV off-grid Power Plant at -----
----- of ----- kWp handed over to the Consignee cum User Agency in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of five years from this date of Commissioning. The above-mentioned SPV Power Plant is hereby handed over by the contractor to the Consignee cum User Agency in fully satisfactory working condition.

Date:
Place:

Seal and Signature of the Contractor:
Name:
Designation:

SPV off-grid Power Plant Installed at ----- of -----kWp have been verified by JREDA Engineer-In -Charge and handed over to consignee in working condition.

Seal and Signature of Consignee cum User Agency
In -Charge
Name:
Designation:

Seal and Signature of JREDA Engineer-
Name:
Designation:

Annexure-I

Forming integral part of the Joint Commissioning report dated ----- showing details of major components installed at-----of SPV of ----- kWp Capacity.					
S. N.	Name of the items Installed/works. commissioned at site	Size	Unit	Quantity	Remark
1	Control Room Building: No cable is exposed. Proper casing capping (Conduit pipe) is provided with distribution line. Control Room has been provided by Consignee.	----- L*B*H (feet)	Sq. Mtrs.	N/A	Provided
2	Matting as required for Control Room	Provided			
3	SPV Modules of -----Wp, ----- Cells each of ----- make (Serial No's as mentioned in enclosed Annexure II.)		Wp	Nos.	As per specification
4	SPV Module Mounting Structure for the --- ----- Nos. of modules for----- kWp capacity unit on structure including design & construction of PCC/RCC foundation base for holding the above structures the work includes necessary excavation, concreting, back filling, shoring and shattering etc.)	----- Modules in ----- -- structure		----- Nos.	As per specification
5	PCU/Inverter: Capacity -----KVA ----- V, Digital sine wave, Make of -----, suitable for grid tie and hybrid mode of operation along with all protection, controlling, arrangement and required accessories suitable for the power plant commissioned.		KVA	----- No's	As per specification
6	Lightening Protection System		Numbers	- ----- No	
7	Over Voltage protection System				
8	DCDB		Numbers	- ---- No	
9	ACDB		Numbers	- --- No	
10	Array Junction Box:		Numbers	- --- No's	
11	Earthing Protection: The earthing pit is as per IS:3043	OPITS	Numbers	- ---- Sets	
12	Cable/wire 4 Sq. mm PVC Copper	-----	Meters		
13	Cable/Wire 25 Sq. mm PVC Copper	-----	Meters		

Date:

Place:

Seal and Signature of the Contractor:

Name:

Designation:

Verification Report of JREDA Engineer-In –Charge:

Above mentioned **Annexure-I** w.r.t. installation of Solar Power Plant of ---kWp at ----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Annexure-II

SPV Modules Details

SPV Modules Installed at..... ofkWp Capacity.

Total Capacity ----- kWp
Each Modules Capacity----- Wp
Total No of Modules-----Nos.

S. No.	Module SI. No.	S. No.	Module SI. No.	S. No.	Module SI. No.
1		9		17	
2		10		18	
3		11		19	
4		12		20	
5		13		-	
6		14		-	
7		15		-	
8		16		-	

Date:

Seal and Signature of the Contractor:

Name:

Designation

Place:

Verification Report of JREDA Engineer-In -Charge:

Above mentioned Module SI. No. w.r.t. installation of Solar Power Plant of ---kWp at ----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Power Conditioning Unit (PCU)/Inverter

Make:

Sl. No:

Photographs Enclosed:

Date:

Seal and Signature of the Contractor:

Place:

Name:

Designation

Verification Report of JREDA Engineer-In -Charge:

Above mentioned photograph w.r.t installation of Solar Power Plant of ---kWp at ----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Annexure-18: Operation and Maintenance Guidelines of Grid Connected PV Plants
NIB No: 09/JREDA/CMC/WS/OFF GRID/24-25

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis. All the components should be kept clean. It should be ensured that all the components are fastened well at their due place.

Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

1. SOLAR PANELS

Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

The panels are cleaned at least once every fifteen days.

- Any bird droppings or spots should be cleaned immediately.
- Use water and a soft sponge or cloth for cleaning.
- Do not use detergent or any abrasive material for panel cleaning.
- Iso-propyl alcohol may be used to remove oil or grease stains.
- Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
- Wipe water from module as soon as possible.
- Use proper safety belts while cleaning modules at inclined roofs etc.
- The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
- Check if there are any shade problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place.
- Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
- Never use panels for any unintended use, e. g. drying clothes, chips etc.
- Ensure that monkeys or other animals do not damage the panels.

2. CABLES AND CONNECTION BOXES

- Check the connections for corrosion and tightness.
- Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
- There should be no vermin inside the box.
- Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire.
- If the wire is outside the building, use wire with weather-resistant insulation.
- Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
- If some wire needs to be changed, make sure it is of proper rating and type.

3. INVERTER

- The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
- Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps' nests in heat sinks.
- Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
- Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

4. SHUTTING DOWN THE SYSTEM

- Disconnect system from all power sources in accordance with instructions for all other components used in the system.
- Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- To the extent possible, system shutdown will not be done during day time or peak generation.

**INSPECTION AND MAINTENANCE
SCHEDULE**

Component	Activity	Description	Interval	By
PV Module	Cleaning	Clean any bird droppings/ dark spots on module	Immediately	User/Technician
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents.	Fortnightly or as per the site conditions	User/Technician
	Inspection (for plants > 100 kWp)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician
PV Array	Inspection	Check the PV modules and rack for any damage. Note down location and serial number of damaged modules.	Annual	User/Technician
	Inspection	Determine if any new objects, such as vegetation growth, are causing shading of the array and move them if possible.	Annual	User/Technician

	Vermin Removal	Remove bird nests or vermin from array and rack area.	Annual	User/Technician
Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required. Check position of switches and breakers. Check operation of all protection devices.	Annual	Electrician
Wiring	Inspection	Inspect cabling for signs of cracks, defects; loose connections, overheating, arcing, short or open circuits, and ground faults.	Annual	Electrician
Inverter	Inspection	Observe instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required.	Monthly	Electrician
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instruments	Validation	Spot-check monitoring instruments (Pyranometer etc.) with standard instruments to ensure that they are operational and within specifications.	Annual	PV Specialist
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.	Annual	Electrician

Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants:

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

Solar PV Modules/Panels:	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating -: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules - Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
IEC 62759-1	Photovoltaic (PV) modules - Transportation testing, Part 1: Transportation and shipping of module package units

Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
BS EN 50530 (as applicable)	Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements

IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – Power Conditioners and Inverters a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
IEC 61000 – 2,3,5 (as applicable)	Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PV Inverters
Fuses	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3:
	Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
Surge Arrestors	
IEC 62305-4	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

Cables	
IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing/Lightning	
IEC 62561 Series (Chemical earthing)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
Energy Meters	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements)
IS 2062/IS 4759	Material for the structure mounting
Solar PV Roof Mounting Structure	
IS 2062/IS 4759	Material for the structure mounting

Note: Equivalent standards may be used for different system components of the plants after due consultation with Engineer-in charge of work.

Annexure-19**List of Solar Mini Grid Sites in West Singhbhum District**

Sl. No.	District	Block	Village	Census code	Capacity (kWp)	HHs
1	West Singhbhum	Bandhgaon	Lowahatu	377162	11	44
2	West Singhbhum	Bandhgaon	Bobonga	377163	11	42
3	West Singhbhum	Bandhgaon	Halmad	377186	8	30
4	West Singhbhum	Bandhgaon	Pingu	377161	20	78
5	West Singhbhum	Tonto	Rajabasa	377991	5	18
6	West Singhbhum	Tonto	Jhirjhanr	377989	5	20
7	West Singhbhum	Goilkera	Sonva	377663	23	90
8	West Singhbhum	Goilkera	Srijang	377674	21	102
9	West Singhbhum	Goilkera	Rerda	377576	45	180
10	West Singhbhum	Goilkera	Saitba	377570	38	150
11	West Singhbhum	Goilkera	Bangurkia	377621	15	60
12	West Singhbhum	kumardungi	Haldi Pokhar	378425	59	233
13	West Singhbhum	Sonua	Nachalda	376913	18	70
14	West Singhbhum	Sonua	Munjunia	376927	22	85
15	West Singhbhum	Goilkera	Balia	377618	18	70
16	West Singhbhum	Goilkera	Sangajata	377661	18	70
17	West Singhbhum	Goilkera	Lomenta (Lobenta)	377619	20	80
18	West Singhbhum	Goilkera	Patunsha (Patung)	377664	28	110
19	West Singhbhum	Tonto	Rutagutu	377988	7	25
20	West Singhbhum	Tonto	Husia	377992	14	55
21	West Singhbhum	Tonto	Gaupur	377964	5	20
22	West Singhbhum	Tonto	Kuessuta	377982	13	50
23	West Singhbhum	Tonto	Udalkam	377979	9	35
24	West Singhbhum	Tonto	Akahata	377986	20	77
25	West Singhbhum	Sonua	Baskata	376932	14	54

26	West Singhbhum	Manoharpur	Lowasokra	377746	9	35
27	West Singhbhum	Tonto	Bundu	377985	38	145
28	West Singhbhum	Goilkera	Ambiya (Arabia)	377620	13	50
29	West Singhbhum	Tonto	Banki	377981	15	60
30	West Singhbhum	Tonto	Sarjom guru	377963	10	40
31	West Singhbhum	Goilkera	Borae (Borne)	377662	43	170
32	West Singhbhum	Bandhgaon	Tarobera	377978	7	26
33	West Singhbhum	Sonua	Mundari	376924	17	68
34	West Singhbhum	Bandhgaon	Shankra	377185	8	30
35	West Singhbhum	Sonua	Udalkom	376953	13	50
36	West Singhbhum	Tonto	Kadal Sakwa	377983	15	60
37	West Singhbhum	Bandhgaon	Jerakel	377100	17	66
38	West Singhbhum	Bandhgaon	Kurjulee	377188	27	106
39	West Singhbhum	Bandhgaon	Jankopai	377183	17	66
40	West Singhbhum	Bandhgaon	Kotagara	377184	20	80
41	West Singhbhum	Tonto	Pukri Kuru	377990	15	60
42	West Singhbhum	Tonto	Tembahaka	377993	14	55
43	West Singhbhum	Tonto	Tuebera	377987	12	45
44	West Singhbhum	Tonto	Masuriburu	377980	14	55
45	West Singhbhum	Tonto	Patatarob	377962	25	100
46	West Singhbhum	Sonua	Karumba	376912	20	80
47	West Singhbhum	Noamundi	Karampada I & II	377913	48	151